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ABSTRACT

The purpose of this practicum was to develop and implement a pilot project combining school and public transit services in Marin County, California. To accomplish this aim, it was necessary to gain approval from several public agencies, obtain funds to finance part of the study, gather and analyze data on school transportation and public transit services, develop alternatives for consolidating and combining transportation services, select one alternative for development into a pilot project, and gain approval from various public agencies to begin implementation of the pilot project. Volume 1 of the report describes in detail how each of these steps was accomplished and discusses each of the nine alternatives considered for pilot implementation. Volume 2 consists of appendixes that present maps and other data on transportation in the demonstration area and provide information on the various studies and surveys that contributed to development of the pilot project. (Author/JG)

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IMPLEMENTATION OF A PILOT DEMONSTRATION PROJECT TO COMBINE SCHOOL BUS AND PUBLIC TRANSIT SERVICES

by
Robert E. Spain

Submitted in partial fulfillment of the requirements for
the degree of Doctor of Education, Nova University

Volume I

Fairfield, California Cluster
Daniel Muller, Ph. D., Coordinator

Maxi II Practicum
December 1975

EA 007 782

LAGUNITAS SCHOOL DISTRICT

P. O. Box 208, San Geronimo, Ca. 94963
Phone (415) 488-9399

December 29, 1975

Mr. S. O. Kaylin
Associate in Practicums
Nova University
3301 College Avenue
Fort Lauderdale, Florida 33314

Dear Mr. Kaylin:

The pilot project developed as a result of the work of Mr. Robert E. Spain has been approved by the Lagunitas School District Board of Trustees. We are certainly grateful that our district was chosen to be the pilot district. We are confident that if federal funding is not available, we will be able to work out a solution with the Golden Gate Bridge, Highway, and Transportation District and the Marin County Transit District so that the pilot project can start in September of 1976.

I have followed the project very closely and worked with Mr. Spain to develop the pilot in our district. He has done an outstanding job in putting together data that will be useful for all districts of the county.

Mr. Spain's ability to organize, direct and develop this year long study will be of great benefit to the citizens of Marin County.

Sincerely,

Harry F Roche
HARRY F. ROCHE
District Superintendent

llw

GILBERT L. SLUSHER
SUPERINTENDENT AND
SECRETARY OF THE BOARD

LARKSPUR SCHOOL DISTRICT
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December 30, 1975

Mr. S. O. Kaylin
Associate in Practicum
Nova University
3301 College Avenue
Ft. Lauderdale, Florida 33314

Dear Mr. Kaylin:

This letter is to relate to you my evaluation of the practicum Mr. Robert E. Spain has recently completed.

The Larkspur School District has been involved in this project from the start. Mr. Spain exhibited tenacity in developing a pilot project that is scheduled to start in September 1976.

Mr. Spain has been very thorough in gathering and compiling data for this project. Many of the school districts as well as the public transit districts are already using the data for future planning.

In my opinion this practicum achieved the objectives Mr. Spain outlined to us many months ago. He is to be commended for bringing about the many changes evident in the cooperative attitude of the various public agencies involved.

Sincerely,

Gilbert L. Slusher

GILBERT L. SLUSHER
District Superintendent

GLS:pvl

REED UNION SCHOOL DISTRICT
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•
REEDLAND WOODS
215 Blackfield Drive
•
GRANADA
50 El Camino Drive
Corte Madera 94925
•

December 30,1975

Mr. S.O. Kaylin
Associate in Practicum
Nova University
3301 College Avenue
Ft. Lauderdale, Fla. 33314

Dear Mr. Kaylin,

I have been impressed with the professional job that has been done by Mr. Robert E. Spain as he explored the feasibility of combining school bus service with public transit.

His actions have been most professional and the research and data that he has presented to the school districts has been truly outstanding. I have attended a number of the meetings that he has conducted and in every contact he has demonstrated not only his committment to public education but his ability to explore and analyze problems.

After having read the practicum, it is my opinion that it is a fair and accurate representation of the work that he did. He is to be congratulated for his efforts and I certainly recommend his practicum for approval.

Sincerely,

Ralph D. Giovanniello

Ralph D. Giovanniello
District Superintendent

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December 29, 1975

Mr. S. O. Kaylin
Associate in Practicums
Nova University
3301 College Avenue
Ft. Lauderdale, Florida 33314

Dear Mr. Kaylin:

This letter is in reference to the practicum of Mr. Robert E. Spain. Mr. Spain has performed a very worthwhile service for the schools of Marin County in this project. He has worked diligently to see that all details have been covered.

Mr. Spain began this project with great enthusiasm and was able to gain support of the many agencies involved. I attended several of the Technical Advisory Committee meetings conducted by Mr. Spain and he has kept them informative, by presenting data accurately.

Mr. Spain is to be commended for his leadership in this project. Much of the data collected and compiled has been of use to the agencies involved. Our Board of Trustees was grateful for the indepth study of our own bus system.

We are very appreciative of the work Mr. Spain has done and we have pledged to continue participating with other members of the Technical Advisory Committee to further improve our school bus operations.

Sincerely,

Donald W. Johnson

Donald W. Johnson
Superintendent

DWJ:mo

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ABSTRACT

The purpose of this practicum was to develop and implement a pilot project to combine school and public transit services in Marin County. This required: gaining approval of several public agencies; obtaining funds to cover a portion of the study; gathering data and analyzing school transportation; gathering data and analyzing public transit services; developing alternatives for different ways of consolidating and combining services; selecting an alternative to develop into a pilot project; and gain approval of the necessary public agencies to begin implementing the pilot demonstration project.

INTRODUCTION

Marin County, California is just across the Golden Gate Bridge from San Francisco. It is primarily an urban area of over 500 square miles of gentle rolling hills. The 1970 census showed that Marin County has both the highest level of educational attainment by its adults in California and the highest per capita income in the state. The population of the county is approximately 225, 000 and is showing very little growth.

There are sixteen elementary school districts, two high school districts, two unified school districts and one community college district in the county.

The county superintendent of schools operates a countywide regional occupational program, special schools and classes for physically and mentally handicapped, as well as several schools in institutions. Present public school enrollment is approximately 50, 000. There has been a 2 percent decline in enrollment countywide during the past year.

The writer is the Assistant Superintendent, Marin County Schools Office, with primary responsibilities of administration and supervision of over 250 certificated and classified employees. One of the responsibilities of the Assistant Superintendent is to provide liaison with district superintendents, boards of trustees, and resource agencies.

Expenditures per pupil have traditionally been above the state average and most of the districts in the county are referred to as "wealthy" districts. A new finance structure has been initiated in California which, in effect, imposes a revenue limit per child rather than a tax rate. The net result is to eventually equalize funding to provide equal educational opportunities for all students. The result of this for wealthy districts is devastating because they are not allowed to increase the revenue limit to meet the inflation. Consequently, the fight for the dollar is on between providing salaries, supplies, and services.

1. ASSESSMENT OF NEED FOR TRANSPORTATION STUDY

One of the services that many educators usually look at as nonessential is school bus transportation. However, one of the quickest ways to fill the audience at a board meeting is to have an agenda item initiating the elimination or reduction of school buses or routes. Nevertheless, the recent impact of the energy crisis, higher costs associated with salaries and fuel, and the awareness of environmental concerns -- namely air and noise pollution -- have combined to bring all forms of transportation into greater focus.

In recognition of this need, the Marin County Grand Jury and the Marin County Schools Office undertook a study in 1973 to ascertain if there could be a consolidation of school bus operations with public transit. The preliminary analysis indicated that provision of school bus transportation by the public transit district would not be feasible and would be costly because of current incompatibility between school and present commute operations. The grand jury recognized that a much broader study would need to be made and recommended that the Marin County Transit District conduct a study to determine if transportation of public school students could be undertaken within the proposed expanded intracounty bus system. It was further recommended that the Marin County Schools Office and the school districts consider consolidation of their transportation systems. (See Appendix I.)

The feasibility of consolidation must be determined on the basis of the advantages or disadvantages that would occur in centralized dispatching, storage, maintenance, and capital equipment purchasing. The potential for combining school service with public transit service needs to be analyzed on the basis of common routing, special vehicle requirements, and the possibility of developing funding transfer mechanisms between the school districts, the California State Department of Education, and the Marin County Transit District. Federal and state legislation that may prohibit consolidation or combination of school bus service and public transit must be considered. (See Appendices II & III.)

After working with the grand jury in the preliminary study, I was convinced that the Marin County Schools Office should take the leadership in studying and implementing some type of combined transportation system. The state department of education informed me that only two county schools offices in the state have combined the school district transportation system through a joint powers agreement. There is no public transit system involved in these ventures. A computer search through the San Mateo Educational Resources Center produced very little information on this topic. (See Appendix IV.) However, I did obtain information on two types of combined systems in other states. These systems are included in Appendices V and VI.

2. DEVELOPING A TRANSPORTATION STUDY PLAN

In September of 1974, representatives of the Marin County Transit District, the Golden Gate Bridge, Highway, and Transportation District and the Marin County Schools Office met to discuss a study to determine the possibility of merging services. It was agreed that a study was needed to determine the feasibility of such a plan and that a pilot project would need to be prepared.

The overall purpose of the study will be to determine if any benefits would accrue from a consolidation of school bus operations with an intracounty public transit system. The costs and disruption that could result from an ill-conceived consolidation or combination could be quite high. It is essential, therefore, that any such program be carefully analyzed and tested in advance before recommendation of a final implementation plan.

This is particularly true in transit operations since they have both high capital outlay costs and operating costs associated with their initiation and operation. The combination of school and public transit has an additional constraint in that the vehicle requirements for each service are dissimilar due to government regulations.

It was decided to undertake the project in two phases. Phase I will analyze the potential for consolidation or combination of the two systems on the basis of improved efficiency and the economics of the resultant operation. Careful evaluation of the advantages and disadvantages of each individual system will be made before recommending consolidation or combination. Phase II will be to develop a design to implement and test the new consolidated or combined operation on a pilot basis before full implementation would be proposed.

We also determined it would be necessary to secure funds to hire a consultant firm familiar with public transit systems and school systems. The magnitude of this project and the many separate entities necessary to carry out the proposal preclude the possibility of using existing staff solely.

We were determined at this point that $25,000 be allocated as maximum fee for a consultant. The Marin County Transit District would contribute $15,000 and the school districts, $10,000. The Golden Gate Bridge, Highway, and Transportation District refused to participate monetarily. However, they agreed to lend support with manpower to help research data and provide a person as liaison to the Technical Advisory Committee.

3. OBTAINING APPROVAL FROM PARTICIPATING AGENCIES

The success of the project will depend upon the combined cooperation of all school districts in the county, the Marin County Schools Office, and the Marin County Transit District. This was the first major task undertaken.

I had discussed the possibility of obtaining $5,000 from the County School Service Fund with the president of the board and he agreed to recommend this to the full board. This left $5,000 to obtain from the twenty-one districts. A meeting was called in October 1974, inviting representatives of all school districts in the county. The purpose was to gain the support of all twenty-one districts in the county to participate with manpower and funds. The districts agreed there would be no harm in conducting the study, but some felt reluctant at the suggestion of losing district controlled transportation systems.

The next item on the agenda was funding. I felt it would be difficult to get all twenty-one districts to participate on an equal basis. Since there is 50,000 enrollment in the county, $.10 per student would generate the $5,000 required. It was suggested that the community college and four high school districts be responsible for $.10 per average daily attendance for all students, including elementary, within their districts. I knew it would be much easier to get five school boards to agree than the entire twenty-one districts separately. The representatives of the five districts agreed to let me present the plan to their boards. The other districts agreed to furnish the needed data.

A plan was developed outlining ten major tasks that would be performed:

Task 1: Establish Technical Advisory Committee

To assure that the study provides the proper scope in assessing the feasibility of consolidating or combining school and public transit service in Marin County and to maximize the input of diverse technical views, a Technical Advisory Committee (TAC) must be formed. Membership on the TAC includes but is not limited to representatives of the local school districts; the California State Department of Education; Golden Gate Bridge, Highway, and Transportation District; Marin County Transit District; Metropolitan Transportation Commission; and the Marin County Schools Office.

The function of the TAC is to assist in defining community goals for the combined system; review progress on the study; and suggest methods, resources or alternatives in the analysis of data.

Task 2: Survey of School District Transportation

This task involves obtaining information on current operations, procedures, staffing, budgets, and attitudes necessary for the analysis of school transportation operations. Interviews will be conducted with school board officials and school district staff of all of the districts in the county as well as the county schools office. Data will be collected specifically relating to the transportation demand in each district, the dispatching and routine operation of the transportation system, the storage and maintenance of vehicles, and the purchasing of both vehicle equipment and parts.

Task 3: Analysis of System Characteristics

The physical characteristics of each district's school bus operations will be analyzed. This will include identification of routes and schedules, patronage, and vehicle requirements and condition. This information will be organized into a format suitable for graphic presentation. In addition to scheduled operations, data will also be collected on reliability, schedule adherence, and special operating problems. Particular attention will be addressed to special vehicle requirements occasioned by terrain, turning radii, and handicapped features.

Task 4: Analysis of Administrative Characteristics

The budgets and staffing for the transportation operation of each district will be analyzed. The purpose will be to determine how manpower is used and charged for the transportation function and to identify any differences between districts that might have an impact on consolidated operations. The vehicle replacement policies and schedule will be noted as well as special provisions that prevail regarding part time or split shift drivers. Information will be collected on the potential for consolidated purchasing of transportation equipment and centralized maintenance for major overhaul and repair work.

Task 5: Examine Current Public Transit Utilization

This task will examine the current public transit operations which have a potential for integration with school bus operations. The consultants will collect data on routes, schedules, patronage, and costs associated with public transit operations. Primary focus will be on the Golden Gate Bridge, Highway, and Transportation District service; special shuttles; and categorical programs. A major product from this task will be an analysis of transit user characteristics.

Maintenance and administrative capabilities including utilization of land and buildings, storage, fueling, and repair will be examined.

Task 6: Conduct Transit Needs Analysis

The primary public transit needs in Marin County have been identified in a previous study, the Balanced Transportation Program (BALTRAN).[1] A summary of this study is contained in Appendix VII. That study identified total travel demands in the county and estimated the transit demands on the basis of differences in time and cost between auto and bus travel. The transit routes proposed as a result of that work may be used for the proposed fixed route public service. An additional analysis will be made of the

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[1] Marin County, California, Balanced Transportation Program, Phase II Report: A Transportation Plan for Marin, June 8, 1972, pp. vii-xii.

"captive" (handicapped, elderly, economically disadvantaged) transit market in areas that could not be reasonably served by fixed route service.

Task 7: Identify Degree and Type of Consolidation or Combination with Public Transit

Utilizing data developed in the previous tasks, the potential for consolidating or combining the school and public services for each school district will be examined. The transportation needs within each district will be categorized into one of the following three types of service:

Regular Public Service: includes routes currently operated by the Golden Gate Bridge, Highway, and Transportation District or proposed in the BALTRAN Study that could accommodate school operations with only minor modification.

Demand Responsive Public Service: includes service currently in operation for special purposes where the combined volumes of school and general patrons do not justify a fixed route. It would also include service to captive riders who currently have no access either to automobile or existing public transit.

Single Purpose Bus Service: includes those areas where general public demand for transit would not be significant enough for combining with school operations, and therefore, only school service would be provided.

It is hoped that preliminary cost data can be developed at this point to determine the overall scope and magnitude of consolidation or combination. Even if total consolidation is not feasible on a countywide basis, partial consolidation or combination on a smaller area basis may be feasible. A number of alternatives will result from this analysis. These alternatives will be presented to the Technical Advisory Committee for evaluation. They will cover the full range of minor to total consolidation or combination.

Task 8: Select Area for Pilot Demonstration

In order to test the actual feasibility of implementing consolidated service or combined school and public service, one area will be selected for a pilot demonstration. The purpose will be to assess the costs and administrative operational techniques necessary to maintain the combined operations.

Task 9: Determine Operating Characteristics and Administrative Procedures for Pilot Demonstration

Detailed planning for specific routes, schedules, manpower, and equipment requirements will be determined. Agency responsibilities will be established to simulate as closely as possible the effects of consolidated school operations and combining public and school operations. The three agencies currently providing transit operations -- Golden Gate Bridge, Highway, and Transportation District, Marin County Transit District, and the schools -- will be involved in developing various phases of the pilot demonstration.

Local and state education codes will be reviewed to determine whether any barriers exist to either the pilot or potential future consolidated or combined operations. Of particular concern will be whether such a pilot operation would in any way affect the state subventions received by school districts providing school bus transportation.

Task 10: Develop Evaluation Process for Pilot Demonstration

The pilot test of combined operations will be a demonstration project, conducted during one school year or approximately ten months, to determine the applicability of such a system countywide. An effective evaluation program is required in order for this applicability to be assessed.

Many of the basic parameters required in the evaluation will have been identified in the analysis of existing operations and in the design of the pilot demonstration, including the formulation of service requirements, the establishment of minimum acceptable service standards, and the identification of system deficiencies. Objectives to be measured follow.

1. The cost per passenger mile for both school and transit district will be reduced by 10 percent.

2. There will be a 15 percent increase in the load factors in those transit buses associated with combined operations.

3. Additional transportation support to students for all school related transportation needs over and above the basic home to school commute will be provided as measured by the increase of 8 percent in total school field trip mileage.

4. There will be an increase in utilization of intercounty transit in the pilot area during peak hours measured by a 3 percent increase in the load factors in the pilot area.

5. There will be a 2 percent increase in utilization of GGBHTD intercounty commute buses because of collector and distributor service as measured by the total system load factors.

The plan for the study, with the ten major tasks outlined, was presented to and approved with $5, 000 in funding by the Marin County Board of Education on November 12, 1974. During the months of November and December, I attended board meetings and obtained approval of the project and the additional $5, 000 in funding from the Marin Community College District, Novato Unified School District, San Rafael School District, Shoreline Unified School District, and Tamalpais Union High School District. On December 23, 1974, the Marin County Transit District Board of Directors approved their final commitment of up to $15, 000.

In January 1975, the firm of JHK and Associates of San Francisco agreed to perform certain services in the project. (See Schedule B, Appendix VIII.) It was agreed that the Marin County

Schools Office would contract with the Marin County Transit District for $10,000, and the Marin County Transit District would be the funding agency with the consultant firm.

4. ESTABLISHING A TECHNICAL ADVISORY COMMITTEE (TAC)

The first Technical Advisory Committee meeting was held on January 7, 1975. The voting members of the TAC are representatives of the seven agencies contributing financially to the project: Marin Community College District, Marin County Transit District, Novato Unified School District, San Rafael School District, Shoreline Unified School District, Tamalpais Union High School District, and Marin County Schools Office. Also, representatives from eleven elementary school districts, California State Department of Education, Golden Gate Bridge, Highway, and Transportation District, and Metropolitan Transportation Commission were present. (See Appendix IX.)

The main purpose of the first meeting was to discuss the work plan to be used in conducting the study and implementing a pilot project. The work plan is the carrying out of the ten tasks outlined earlier. We also discussed the role of the TAC which is: approve the work plan to be undertaken, receive progress reports, report to member agencies on progress of study, make specific recommendations on performance of technical work to member agencies, and agree to meet at least once a month during the time this project is going on to review proposals and tasks completed to date.

The committee gave me approval to develop a survey form to gather data on school transportation. We agreed it would be in two parts. Part A would be in regular questionnaire form and Part B would be individual interviews to gather attitudinal data.

I was instructed to work with JHK and Associates to develop the forms to insure that the two methods of data collection would be similar and could easily be compared to one another.

5. SURVEY OF SCHOOL DISTRICT TRANSPORTATION

A questionnaire was developed to obtain data on district transportation operations. The questionnaire was approved by the Technical Advisory Committee on January 14, 1975. The questionnaire covered all aspects of school transportation systems, including categories of expenditures, administrative requirements, school operating hours, routes and schedules, planning procedures and policies, and need for nonscheduled service. A copy of the questionnaire is included in Appendix X.

Interviews were scheduled with key personnel in each school district to obtain a firsthand knowledge of transportation needs and to discuss alternative approaches to meeting these needs. Generally, both a member of the administrative staff and a school board member were interviewed. In the high school and college districts, student representatives were included to obtain a balanced view of transportation issues. In the smaller districts, the interviews were limited to board members.

The interviews were structured to include a discussion of data on transportation operations as well as policy issues. Basically, the interview covered the following areas:

(1) Effectiveness of the current district transportation operation;

(2) Overall operation of the school district; and

(3) Issues involved in alternative concepts for providing school transportation.

A statement of representative issues was prepared and sent to those to be interviewed prior to the scheduled interview. (See Appendix XI.)

Pilot Survey

Prior to the distribution of the survey instrument, a test was conducted with the San Rafael School District to evaluate the format and completeness of the documents. No changes were necessary as a result of this pilot test.

Scope of Survey

All school districts in Marin County were surveyed. In most cases this involved a written questionnaire followed by an interview with district personnel. Since Laguna Joint, Lincoln, Nicasio, and Union Joint School Districts each maintain a single school and provide no transportation services, these interviews were conducted by telephone to obtain general information on school hours, enrollment, use of field trips, and mode of home to school travel. The districts surveyed and the schedule of interviews are listed in Table 1.

Questionnaire Results

The information obtained from the survey questionnaire was organized to reflect the following categories of information: school district characteristics, school transportation services, and transportation costs.

The summary on each category shows the pertinent characteristics of the data obtained, such as the most common response; responses differing from the norm; and the range of responses. Appropriate tables and maps are provided to summarize and clarify the information obtained.

As expected, the level of response on each item of the questionnaire differed according to the district surveyed. Since the questionnaire was structured to include all elements of the most

TABLE 1

INTERVIEWS CONDUCTED

SCHOOL DISTRICT	January 20-24	January 27-31	February 3-7	February 10-14	February 17-21
Bolinas-Stinson				x	
Dixie				x	
Fairfax		x			
Kentfield			x		
Laguna Joint					x
Lagunitas				x	
Larkspur				x	
Lincoln					x
Marin Community College District		x			
Marin County Schools			x	x	
Mill Valley				x	
Nicasio					x
Novato Unified	x				
Reed Union				x	
Ross				x	
San Anselmo			x	x	
San Rafael	x				
Sausalito				x	
Shoreline Unified			x		
Tamalpais Union			x		
Union Joint					x

extensive school district transportation operations, several questions were applicable only to the larger districts maintaining a comprehensive transportation service (e. g. questions on cost of equipment and maintenance facilities). In addition, questions associated with school operated bus systems were not relevant to districts contracting transportation services. In both these cases, a detailed breakdown of transportation costs and other data either were not applicable or not available.

School District Characteristics: A primary objective was to establish the context in which transportation needs and services exist. Consequently, an inventory was prepared which documented the number of schools and the grade levels served for all schools in each district. The information was obtained from the Marin County Schools Directory, 1974-75,[2] and checked against information obtained from the survey questionnaire. This inventory is shown in Table 2.

It is recognized that the schools' inventory will undergo some changes next year. Even more drastic shifts can be expected

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[2] Marin County Schools Directory, 1974-75. Marin County, California.

TABLE 2

INVENTORY OF MARIN COUNTY SCHOOLS

DISTRICT	NUMBER AND GRADE LEVEL OF SCHOOLS		
	Elementary	Middle (Jr)	High School[1]
Bolinas-Stinson	1 K-8		(Tamalpais)
Dixie	7 K-6	2 7-8	(San Rafael)
Fairfax	3 K-6	1 7-8	(Tamalpais)
Kentfield	3 K-6	1 7-8	(Tamalpais)
Laguna Joint	(one-room school)		(Petaluma)
Lagunitas	2 K-8		(Tamalpais)
Larkspur	2 K-6 2 K-8		(Tamalpais)
Lincoln	(one-room school)		(Petaluma)
Mill Valley	6 K-5 1 1-5	1 6-8	(Tamalpais)
Nicasio	1 K-8		(Tamalpais)
Novato Unified	12 K-6	3 7-9	3 10-12
Reed Union	1 K-1 2 K-5 1 2-5	2 6-8	(Tamalpais)
Ross	1 K-8		(Tamalpais)
San Anselmo	3 K-6 1 K-3 1 4-6	2 7-8	(Tamalpais)
San Rafael Elem. and High School	8 K-5 2 K-3 1 4-5	2 6-8	3 9-12
Sausalito	1 K-3 1 4-8		(Tamalpais)
Shoreline Unified	1 K-5 2 K-8 1 1-3		1 9-12
Tamalpais Union H.S.	--	--	3 9-12 1 Continuation 1 Opportunity
Union Joint	(one-room school)		(Petaluma)

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[1] High School serving each school district.

in future years as changing conditions influence the number and location of school facilities. Enrollment will be a key factor in shaping these changes. As enrollment rises or falls, adjustments must be made in number and distribution of physical plants in the districts and in budgeting priorities. These changes can be expected to exert a significant impact on the home to school transportation program.

Table 3 shows the average daily attendance (a. d. a.) for each school district from 1969 to 1974 and indicates changes anticipated in school operations for 1975-76.

State law requires that each school district provide a prescribed number of hours of instruction per day for each student. It does not, however, dictate the operating schedule of the schools. The number of required hours of instruction differs for each grade level; consequently, not all students spend the same amount of time in school.

The distribution of starting and dismissal times can be a critical factor in planning bus schedules and routes and allocating buses to routes. Most school districts currently have a range of starting and dismissal times and many of these utilize staggered

TABLE 3

COMPARISON OF AVERAGE DAILY ATTENDANCE

SCHOOL DISTRICT	1969-1970	1970-1971	1971-1972	1972-1973	1973-1974	IMPACT OF ENROLLMENT CHANGES, 1975-1976
Bolinas-Stinson	161	173	197	189	223	
Dixie	4,871	4,824	4,578	4,379	4,136	
Fairfax	1,124	1,086	1,066	980	951	K-6 School To Be Closed
Kentfield	1,412	1,359	1,309	1,275	1,320	K-6 School To Be Closed
Laguna Joint	16	14	17	17	22	
Lagunitas	470	471	468	481	498	
Larkspur	1,721	1,663	1,603	1,539	1,499	
Lincoln	15	17	15	12	19	
Mill Valley	3,604	3,538	3,342	3,320	3,163	
Nicasio	50	49	49	49	45	
Novato Unified	11,862	11,838	11,736	11,530	10,959	
Reed Union	2,049	1,985	1,863	1,869	1,886	
Ross	517	485	473	506	493	
San Anselmo	2,120	2,076	1,938	1,817	1,811	K-5 School To Be Closed
San Rafael	9,059	9,161	9,040	8,808	8,669	K-5 School To Be Closed
Sausalito	666	562	482	547	543	
Shoreline Unified	846	890	893	850	816	
Talampais Union	6,069	6,038	6,034	5,908	5,811	
Union Joint	12	15	13	9	9	
Marin Co. Coll. Dist.	5,062	5,247	5,755	5,916	6,482	
	51,705	51,464	50,871	50,001	49,355	

sessions to accommodate kindergarten pupils or special classes. Table 4 was prepared to demonstrate the ranges of times at which students arrive and depart scheduled sessions in each school district. The distribution of starting and dismissal times varies from fifteen minutes to several hours. Those starting and dismissal times which tend to fall outside the general concentration of times are listed separately as "Exceptions." This table indicates that, under the current schedules, transportation services are required throughout the day rather than only at concentrated times at the beginning and end of the school day.

Union Joint School District and Lincoln School District are the only districts having single starting and dismissal times. The San Anselmo School District is unique in that starting and dismissal times overlap in the middle of the school day so that some students are leaving school as others are arriving. It was found that, basically, specific starting and dismissal times were established to accommodate bus scheduling to provide for efficient utilization of the school buses.

School Transportation Services: Of the twenty-one school districts surveyed, fifteen operate their own buses or contract

TABLE 4

SCHOOL STARTING AND DISMISSAL TIMES

1974 - 1975

	STARTING TIMES		DISMISSAL TIMES*	
SCHOOL DISTRICT	Regular Sessions	Staggered or Slip Sessions	Staggered or Slip Sessions	Regular Sessions
Bolinas-Stinson	8:30 AM	11:30 AM	11:30 AM	1:30 PM, 2:30 PM
Dixie	8:30-9:00 AM	9:30, 9:50 AM	11:30 AM-12:30 PM	2:25-3:00 PM
Fairfax	8:15-9:30 PM	11:50-11:53 AM	11:15-11:45 AM	1:50-3:15 PM
Kentfield	8:30 AM			2:45-3:08 PM
Laguna Joint	9:00 AM	11:00 AM		2:00-3:00 PM
Lagunitas	8:25-9:50 AM	12:25 PM	11:50 AM, 12:25 PM	1:30-3:25 PM
Larkspur	8:40-8:45 AM			3:00 PM
Lincoln	9:00 AM			3:00 PM
Marin Comm. Coll. Dist.	8:00 AM			10:00 PM
Marin Co. Schools	8:15-9:00 AM		10:20 AM, 12:30 PM	1:00-3:07 PM
Mill Valley	8:40-9:00 AM		12:00-12:25 PM	1:50-3:10 PM
Nicasio	9:00 AM	12:00 N		3:00 PM
Novato Unified	8:15-9:30 AM	11:50 AM	11:30 AM	1:40-3:05 PM
Reed Union	8:30-8:45 AM		1:00 PM	2:00-3:15 PM
Ross	8:40-9:00 AM		12:00 N	2:30-3:20 PM
San Anselmo	8:30-8:55 AM	10:05 PM, 12:10 AM 12:15 AM	11:45-11:55 AM	2:00-3:15 PM
San Rafael	8:10-8:34 AM	9:00 AM	3:20 PM	2:00-2:50 PM
Sausalito	8:30-9:30 AM		11:30 AM, 12:30 PM	1:30-3:20 PM
Shoreline Unified	8:45-9:00 AM	12:00 N	11:45 AM, 12:00 N	2:00-3:05 PM
Tamalpais Union	7:30-8:55 AM			2:05-3:05 PM
Union Joint	8:30 AM			2:30 PM

* Does not include minimum day schedule

for bus service, and six do not provide service. Alternative forms of transportation are utilized in those districts not providing for school transportation. For example, Tamalpais Union High School District students and College of Marin students use public transit where and when it is available, and parents provide transportation for many students in the Lincoln, Laguna Joint, Nicasio and Union Joint School Districts.

Two-thirds of the fifteen school districts providing school transportation operate their own equipment. The remainder contract with an independent bus operator for school service. Generally, districts contracting bus services have smaller enrollments and require fewer buses than those districts operating their own bus system. The exceptions are the Bolinas-Stinson Union School District and San Anselmo School District. These districts both run a two bus operation and own their buses.

Table 5 indicates the number and capacity of the school buses currently in operation for both school operated and contracted service. Mark IV School Bus Service is the operator of the service in those districts using contractor operated systems. In conformance

TABLE 5

INVENTORY OF BUSES

SCHOOL DISTRICT	DISTRICT OPERATED	CONTRACTOR OPERATED	NUMBER OF BUSES BY CAPACITY[1]									
			76-79	69-73	66-67	60-62	51-55	37	16	6-12	W.C.[2]	TOTAL
Bolinas-Stinson	x				2							2
Dixie	x				3	1						4
Fairfax		x			2							2
Kentfield		x			1							1
Laguna Joint						DOES NOT APPLY						0
Lagunitas	x				3							3
Larkspur		x			2							2
Lincoln						DOES NOT APPLY						0
Marin Comm. Coll. Dist.												0
Marin Co. Schools[4]	x							3	12	12	9	36
Mill Valley	x		5		1	1	1					8
Nicasio						DOES NOT APPLY						
Novato Unified	x		13	1					1	1		16
Reed Union		x			4							4
Ross						DOES NOT APPLY						0
San Anselmo	x				1		1					2
San Rafael	x			5	11				2			19[3]
Sausalito	x				2	2						4
Shoreline Unified	x		5			2	3		2	2		14
Tamalpais Union	x						1			1		2[5]
Union Joint						DOES NOT APPLY						0
TOTAL	110	9	24	6	32	6	6	3	17	16	9	119

[1] Vehicles with capacity of five or less passengers are not included.

[2] W.C.-Wheelchair equipped.

[3] District actually owns 20 buses; one bus is leased to San Anselmo School District.

[4] Technically Marin County Schools is not a separate district but operates transportation for the special education program.

[5] Used for field trips and extracurricular activities only.

with normal practice in school bus classification, capacity is determined on the basis of three students for each row of seats.

School buses must meet strict standards of performance established by the State of California. These standards are uniform for Class I vehicles, i.e., buses seating twelve or more passengers. There is no uniformity, however, in procedures used by school districts to maintain their buses. In general, maintenance falls into three categories. They are: district operated maintenance facilities, maintenance contract, and contractor operated.

The district operated maintenance facilities are either exclusively devoted to the repair and maintenance of school district vehicles, or they may be shared with buildings and grounds maintenance facilities.

Local repair and maintenance services are contracted for by school districts with both large fleets such as Shoreline School District, and small fleets such as Lagunitas School District. These contracts include all maintenance, repair, and servicing functions or cover only major overhauls and yearly inspections with the drivers handling the minor repairs or servicing.

Bolinas-Stinson School District has no local maintenance contract for its buses, but contracts with the school bus manufacturer for major repairs and maintenance as needed. Minor repairs are performed by drivers using their own equipment.

Contracted bus service provided by an independent operator (Mark IV School Bus Service), includes repairs and maintenance.

Table 6 shows the categories in which each district falls.

The measure of reliability used in the survey was annual in-service breakdowns for the 1973-74 school year. Most districts fared well on this measure as demonstrated in Table 7.

The number of breakdowns must be related to the size of the bus fleet. For example, although San Rafael recorded twenty-one breakdowns in 1973-74, this amounts to just over one per bus per year based on the fleet size of nineteen buses. Most districts have a record equal to or better than this rate.

Although the Fairfax School District experienced a relatively high incidence of breakdowns last year, they reported

TABLE 6

BUS MAINTENANCE

SCHOOL DISTRICT	OWN MAINTENANCE FACILITY	MAINTENANCE CONTRACT	OTHER
Bolinas-Stinson	x		Minor maintenance by District Major maintenance by vendor
Dixie	x		
Fairfax			Included in service contract
Kentfield			" " "
Lagunitas		x	
Larkspur			Included in service contract
Lagunitas	Does not apply		
Lincoln	Does not apply		
Marin Comm. Coll. Dist.	Does not apply		
Marin Co. Schools		x	
Mill Valley		x	
Nicasio	Does not apply		
Novato Unified	x		
Reed Union			Included in service contract
San Anselmo		x	
San Rafael	x		
Sausalito		x	
Shoreline Unified	x	x	Maintenance Contract for routine servicing only
Tamalpais Union	x		
Union Joint	Does not apply		

TABLE 7

SYSTEM RELIABILITY

1973 - 1974

SCHOOL DISTRICT	DISTRICT-OPERATED BUSES	CONTRACTOR-OPERATED BUSES	ANNUAL IN-SERVICE BREAKDOWNS
Bolinas-Stinson	x		Less than one
Dixie	x		10
Fairfax		x	20
Kentfield		x	Information not available
Laguna Joint			Does not apply
Lagunitas	x		Less than two
Larkspur		x	5
Lincoln			Does not apply
Marin Comm. Coll. Dist.			Does not apply
Marin Co. Schools	x		75
Mill Valley	x		5
Nicasio			Does not apply
Novato Unified	x		Information not available
Reed Union		x	1
Ross			Does not apply
San Anselmo	x		Less than one per year
San Rafael	x		21
Sausalito	x		8
Shoreline Unified	x		5
Tamalpais Union	x		Does not apply
Union Joint			Does not apply

that their contractor operated service this year (1974-75) has improved dramatically (less than one breakdown per bus).

Data was acquired on route or run starting and ending times, route mileage, number of stops, number of students transported, and route locations for each school district transportation system. Maps of routes used in home to school bus service were prepared for each school district and are provided in Appendix XII. The small scale map shows bus routes of school districts in the western portion of the county. Larger scale maps of Novato, San Rafael, and Mill Valley show routes for school districts in the heavily populated eastern portion of the county. Table 8 indicates the number of buses used for home to school transportation at different hours of the day. The table demonstrates that the highest fleet utilization occurs in peak periods in the morning and in the afternoon coincident with the starting and dismissal times of the school. Accordingly, fleet utilization in the middle of the day drops off for most school districts, although districts with small fleets and staggered sessions (such as Lagunitas, Larkspur, San Anselmo, and Sausalito) maintain a fairly high utilization of equipment throughout the day.

TABLE 8

SCHOOL BUS UTILIZATION

Buses Operating in Home to School Service by Hour

SCHOOL DISTRICT	FLEET[1] SIZE	7:00 AM 8:00 AM	HOURS 8:00 AM 9:00 AM	9:00 AM 10:00 AM	10:00 AM 11:00 AM	11:00 AM 12:00 N	12:00 N 1:00 PM	1:00 PM 2:00 PM	2:00 PM 3:00 PM	3:00 PM 4:00 PM	4:00 PM 5:00 PM
Bolinas-Stinson	2	2	2	-	-	1	-	2	2	-	-
Dixie	4	2	4	1	-	2	2	1	3	3	-
Fairfax	2	2	2	1	-	1	1	2	2	2	1
Kentfield	1	1	1	-	-	-	-	-	-	1	1
Laguna Joint	0	-	-	-	-	-	-	-	-	-	-
Lagunitas	3	-	2	2	-	2	2	2	2	2	-
Lincoln	0	-	-	-	-	-	-	-	-	-	-
Larkspur	2	2	2	2	-	2	2	2	2	2	-
Marin Comm. Coll. Dist.	0	-	-	-	-	-	-	-	-	-	-
Marin Co. Schools	36	31	32	21	-	5	8	17	29	31	17
Mill Valley	8	6	6	4	-	3	4	7	6	5	2
Nicasio	0	-	-	-	-	-	-	-	-	-	-
Novato Unified	16	10	14	10	-	6	7	11	12	14	1
Reed Union	4	4	4	-	-	-	-	-	4	4	-
San Anselmo	2	1	2	1	1	2	2	1	2	2	-
San Rafael	19[2]	14	15	-	-	2	-	-	15	15	-
Sausalito	4	4	4	4	-	3	3	3	3	4	1
Shoreline Unified	14	10	12	-	-	-	-	4	7	10	6
Tamalpais Union	2	-	-	-	-	-	-	-	-	-	-
Union Joint	0	-	-	-	-	-	-	-	-	-	-
Available Buses	119	119	119	119	119	119	119	119	119	119	119
Total Buses in Use		89	102	46	1	29	31	52	90	96	29
Buses Not in Scheduled Use		30	16	73	118	90	88	67	29	23	90

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[1] Vehicles seating 5 passengers or less are not included.

[2] District actually owns 20 buses; one is leased to San Anselmo School District.

In cases where bus utilization falls off during the day, these buses are available for field trips. Where the drop-off in utilization is slight, equipment freed from home to school transportation is limited in terms of the number of buses and the amount of time available for field trips. This situation is particularly acute in San Anselmo for example, where field trips on district vehicles must be limited to a single hour in the morning.

Marin County is characterized by hilly terrain. Home sites are located in many areas inaccessible by large vehicles and are therefore impossible to service with the larger size school buses. Transportation in these remote, hilly areas is usually dependent on private automobiles. In marginal areas, most school districts use the smaller sixty-six passenger bus. All route and stop locations must be reviewed and approved by the California Highway Patrol.

No serious problems with student conduct were reported by any school district. Although minor incidences of vandalism were noted, none of the occurrences were considered significant. Generally, student conduct is more of a problem with middle (or junior high) school students than with elementary or high school students. Drivers are expected to maintain order in buses and most school districts report that their school bus drivers act as a stabilizing element for students and experience little difficulty in controlling their conduct on the buses.

Adherence to schedule was another measure considered. In this case it was stated that, generally, schedules were maintained within acceptable limits and there were no instances reported of driver irresponsibility associated with this factor.

The most obvious measure of the performance of a bus driver is the number of citations or chargeable accidents accrued by the driver over the year. However, it was learned that this measure cannot be practically applied to school bus operators, since being charged as responsible for an accident is cause for immediate dismissal and/or loss of operator's license. Additionally, it was found that none of the drivers of school district buses had been so charged.

Part of the reason for the good safety record in school bus transportation is the stringent state standards for driver training and retraining. Briefly, in addition to the initial requirement of having a Class II driver's license and passing a first aid test, each driver must undergo twenty hours of training annually. Moreover, two annual evaluations of driver performance are required by the state. These are performed by inspectors licensed by the state. In several of the school districts surveyed, inspection licenses are held by personnel in the school district and inspections are performed inhouse.

The Marin County Schools Office operates a fleet of buses specifically for the purpose of transporting students in the county's special education programs. While some school districts maintain their own special education programs (e. g. Novato, San Rafael, Sausalito, etc.), transportation is seldom provided for students enrolled in these district programs.

The need for transportation other than between home and school was also surveyed. The number of occasions each semester when transportation was provided for such activities as curriculum oriented field trips and after school activities was used as an indication of the need for this type of transportation. The results vary widely from district to district as illustrated in Table 9.

TABLE 9

NON HOME TO SCHOOL TRANSPORTATION

SCHOOL DISTRICT	NUMBER OF TRIPS PROVIDED PER SEMESTER	PURPOSE OF TRIP		TYPE OF TRANSPORTATION		
		FIELD TRIPS	AFTER SCHOOL ACTIVITIES	DISTRICT BUSES	SPECIAL CHARTER	PARENTS
Bolinas-Stinson	40	x		x		
Dixie	42	x		x	x[1]	
Fairfax	16			x	x	x
Kentfield	100	x		x		
Laguna Joint	4	x				x
Lagunitas	20	x		x		
Larkspur	70	x			x	
Lincoln	5	x				x
Marin Comm. Coll. Dist.	-					
Marin Co. Schools	NA	x		x		
Mill Valley	200	x	x	x		
Nicasio						x
Novato Unified	100	x		x		
Reed Union	40	x		x		
Ross	40	x		x		
San Anselmo	30	x		x	x	x
San Rafael	80	x	x	x		x
Sausalito	15	x		x	x	x
Shoreline Unified	(70)	x	x	x		x
Tamalpais Union	200-225	x	x	x	x	
Union Joint	5	x				x

NA - Not Available

[1] Public transit also used for field trips

It was found that the number of times non home to school transportation was provided was not necessarily an accurate reflection of the need for such transportation. In many school districts, budget limitations restrained the number of field trips that could be taken. In other cases, such as San Anselmo, lack of available buses during school hours limited this type of trip.

In some districts, the budget for field trips is included in a per pupil allotment for classroom materials (i. e. text or workbooks, art supplies, transportation, etc.). In those districts using program budgets, transportation is included in the overall program costs (i. e. the cost of buses used to transport the football team is charged against the athletic program).

Where the use of school buses for non home to school activities is limited by budget constraints or the lack of availability, transportation is often provided by automobile or other private means. That is, students or their parents may carpool, or, as in the case of "away" football games, students may bicycle or take public transit if available. (When district equipment is used for student "rooter" buses, the students usually charter the bus from the district and pay a round trip fee for its use.)

In the larger districts, parents have been utilized to supplement scarce school district transportation resources for field trips particularly those associated with educational programs. Most school districts have utilized parent transportation effectively by requesting that vehicles be inspected by the California Highway Patrol and that parents sign a waiver of school responsibility in each instance. Only Ross School District reported that parent transportation had been tried at one point and dropped for reasons of safety. In the smaller school districts -- Laguna, Lincoln, Nicasio, and Union -- this is the only type of transportation available.

School buses serve only 18 percent of all home to school travel in Marin County. Other modes such as walking, bicycling, carpooling, driving, public transit, and parent transportation are responsible for the remainder. The data collected on the distribution of modes used to get to each school in the county was useful in developing alternative concepts for school transportation and for predicting potential student patronage.

Table 10 shows the distribution of student travel by mode. Hitchhiking was incorporated in the "Driven" mode, while motorcycle forms of travel were included in the "Drive" mode. Occasional home

TABLE 10

HOME TO SCHOOL TRAVEL BY MODE[1]

SCHOOL DISTRICT	SCHOOL BUS		DRIVEN		DRIVE		WALK OR BICYLCE		PUBLIC TRANSIT		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Bolinas-Stinson	222	99					1	1			223	100
Dixie	382	9	330	8			3,424	83			4,136	100
Fairfax	300	32	137	14			507	53	7	1	951	100
Kentfield	159	15	161	15			1,000	70			1,320	100
Laguna Joint			22	100							22	100
Lagunitas	464	89	20	4			14	7			498	100
Larkspur	200	13	135	9			1,164	77			1,499	100
Lincoln			19	100							19	100
Marin Comm. Coll. Dist.			1,296	20	2,333	36	194	3	2,659	41	6,482	100
Marin Co. Schools	350	100									350	100
Mill Valley	1,188	37					1,975	63			3,163	100
Nicasio			36	80			9	20			45	100
Novato Unified	2,087	19	1,096	10	2,192	20	4,448	41	1,096	10	10,959	100
Reed Union	770	41	189	10			927	49			1,886	100
Ross			100	20			393	80[1]			493	100
San Anselmo	305	17	55	3			1,451	80			1,811	100
San Rafael	1,980	23	347	4	794	9	5,548	64			8,669	100
Sausalito	380	75					163	25			543	100
Shoreline Unified	679	83	22	3[1]	65	8[1]	50	6[1]			816	100
Tamalpais Union			2,771	48	1,160	20	1,160	20	720	12	5,811	100
Union Joint			9	100							9	100
TOTAL	9,466		6,745		6,544		22,468		4,482		49,705	

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[1] Figures for non-school-bus modes are estimated for Tamalpais Union. All modes except transit are estimated.

to school travel by horse was reported, however the amount of travel by this mode was not significant enough to warrant a separate classification.

Difficulty was encountered in obtaining an accurate profile of student travel since few school districts maintain records on other than school bus transportation. This was especially true of the Marin Community College District, which has a large and diverse student population and maintains no responsibility for school transportation. However, some elementary school districts monitor student travel and were able to give precise figures of the number of students and mode of travel. Where precise data was not readily available, school officials estimated the mode distribution. In those districts providing transportation, the number of students bussed was subtracted from total enrollment and the balance distributed among the non school bus modes.

Except for students in the Marin Community College District and the high school districts, the GGBHTD system appears to draw a relatively small volume of student patrons. The community college district was particularly concerned about the lack of coordination between school schedules and bus schedules. Some use of GGBHTD buses was evident in Novato. However, accurate student patronage figures were not available. Here also, the lack of coordination between the school district and GGBHTD schedules limits the use of public transit service by students.

School districts that provide transportation between home and school typically spend about ten days during the school year planning schedules, monitoring schedule performance, and making adjustments in schedules, routes, and stop locations. The responsibility for planning home to school bus service is frequently shared by a member of the administrative staff and a supervising bus driver.

The process of planning bus routes and schedules in the districts operating transportation systems is very informal and simplistic. Typically, on the opening day of school, the school buses traverse last year's routes and pick up the waiting students. During the next several weeks, schedules and allocated equipment are adjusted to meet the demand based on these first few weeks' experience. Should new residential developments create a need to revise a route or add another bus stop, these changes are considered in the administrative planning function previous to the start of the school year.

Only one school district bases its transportation planning on estimated demand prior to the start of the school year. In most districts, no formal system of planning is used to identify or assign students who require transportation; and, generally, no advance information is provided to the community. Parents in most neighborhoods were visually aware of school bus stop signs or had been informed by neighbors where the school bus would stop for their children. Despite the relatively unsophisticated process, there were no significant complaints or planning problems reported by school administrators.

Most school districts have an established policy with regard to the distance which a child would normally be expected to walk to school. This distance varies depending on the availability of buses and the size of the budget available for transportation. Guidelines are suggested by the state for each grade level. These guidelines are prescribed in conjunction with state procedures for reimbursing school districts for home to school transportation. It is state practice not to reimburse for transportation provided within certain distances unless special circumstances are involved, such as safety. These distances are:

Grades	Miles
K-3	3/4
4-8	1
7-9	1
9-12	2

Allowances are made for bussing within the minimum distance in locations where walking would be hazardous. However, some districts bus students within the minimum distance even when safety is not a consideration.

Not all districts follow state guidelines on minimum distances for bussing as illustrated by Table 11. Dixie, Novato, and San Rafael prescribe minimum distances greater than those established by the state. The reason for these policies is to reduce or hold transportation costs constant.

Kentfield, Fairfax, and Sausalito do not have an explicit policy on minimum distances to govern the provision of transportation services.

TABLE 11

MINIMUM DISTANCE POLICY

Minimum Miles from School at Which
School Transportation is Provided

SCHOOL DISTRICT	GRADE LEVEL			
	K-3	4-6	7,8	9-12
Bolinas-Stinson	3/4	1	1	
Dixie	1(K-2)	2(3-8)	2	
Fairfax	(No Explicit Policy)			
Kentfield	(No Explicit Policy)			
Laguna Joint	(Does Not Apply)			
Lagunitas	(No Policy)			
Larkspur	3/4	1	1	
Lincoln	(Does Not Apply)			
Marin Comm. Coll. Dist.	(Does Not Apply)			
Marin County Schools	(Does Not Apply)			
Mill Valley	1	1.5	1.5	
Nicasio	(Does Not Apply)			
Novato Unified	1	1.5	2.5(7-9)	3.5(10-12)
Reed Union	3/4	1	1	
Ross	(Does Not Apply)			
San Anselmo	3/4	1(4 only)		
San Rafael	3/4	1.5(4-5)	2*	3*
Sausalito	(No Policy)			
Shoreline Unified	3/4	1	1	2
Tamalpais Union	(Does Not Apply)			
Union Joint	(Does Not Apply)			

*Numbers indicated are School Board policy; in practice, 1974-75 distances were 1.5 miles for grades 7-8, and 2 miles for grades 9-12. Distances for 1975-76 conform to Board policy.

The salaries of bus drivers usually account for from 50 to 75 percent of the total cost of transportation service provided by school districts. Information was obtained on the number of drivers employed and salary structure to document this aspect of the total cost structure.

Table 12 shows the number of drivers serving each district and the range of hourly wages paid. Drivers are divided into three categories: fulltime school district personnel; parttime personnel; and backup drivers. Fulltime personnel are regularly employed for an eight hour day over a ten or twelve month year. Drivers employed fulltime usually have other duties besides school bus driving, such as vehicle maintenance, buildings and grounds, etc. Parttime personnel are employed on a regularly scheduled, hourly basis and usually work a split shift. Backup drivers are not employed in scheduled service but are called in as needed.

Most districts hire parttime drivers. This enables flexibility to be maintained in bus scheduling and personnel budgeting. Shoreline and Sausalito School Districts have encountered difficulty in finding drivers to work on a parttime basis; however, both districts reported no problems in maintaining backup personnel.

TABLE 12

DRIVER INVENTORY

SCHOOL DISTRICT	FULL-TIME PERSONNEL	PART-TIME PERSONNEL	BACKUP DRIVERS	HOURLY WAGE RATE
Bolinas-Stinson	1	1		$3.90-4.90
Dixie	2	2	2	\$4.25^{+}-5.25^{+}
Fairfax		2	1	$3.75-4.00
Kentfield		2	2	$3.75-4.00
Laguna Joint	(Does Not Apply)			
Lagunitas		2	2	$4.04-4.27
Larkspur		2	1	$3.75-4.00
Lincoln	(Does Not Apply)			
Marin Comm. Coll. Dist.	(Does Not Apply)			
Marin Co. Schools	1	31		$3.57-4.34
Mill Valley	6	1		$4.52-
Nicasio	(Does Not Apply)			
Novato Unified		17*	3	$3.61-3.98
Reed Union		4	2	$3.75-4.00
Ross	(Does Not Apply)			
San Anselmo	2		1	$4.94
San Rafael		15*	3	$3.86-4.85
Sausalito	3	1	1	$4.58
Shoreline Unified	4	6	3	$3.68-4.48
Tamalpais Union		1		Not Available
Union Joint	(Does Not Apply)			
TOTAL	18	88	20	$4.06-4.45 ave.

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*Regular employees, but less than 8 hours per day.

Transportation Costs: One objective of the survey was to acquire detailed data on transportation costs to enable the effectiveness of existing school transportation operations to be evaluated in a later task.

A breakdown of operating costs and administrative costs was acquired for those districts operating their own transportation services. For contracted service, the amount of the total 1973-74 contract was identified. This information is shown in Table 13.

The total transportation cost for each district was compared with cost information obtained from the State Transportation Reimbursement Request (Form J-141) filed for 1973-74. In many cases cost data did not agree, usually because the cost reported in the state form was higher than the cost obtained from the survey questionnaire. One reason for this may have been that fringe benefits were not included in the determination of total personnel cost. Another reason was that some districts subtracted fuel rebatement cost from the operating costs.

TABLE 13

1973-74 TRANSPORTATION OPERATING AND PERSONNEL COSTS

	OPERATING COSTS[1]						PERSONNEL COSTS			
SCHOOL DISTRICT	GAS, OIL, LUBE	TIRES, TUBES	PARTS, EQUIP.	MAINTENANCE	INSURANCE	TOTAL COST	ADMINISTRATIVE PERSONNEL	MAINTENANCE PERSONNEL	DRIVERS	TOTAL COST
Bolinas-Stinson	800	600	480	720	1,115	3,715			9,632	9,632
Dixie	2,728	931	1,460		1,297	6,416	5,000	9,000	24,000	38,000
Fairfax	(Contracted Service - Information Not Available)						(Contracted Service - Information Not Available)			
Kentfield	(Contracted Service - Information Not Available)						(Contracted Service - Information Not Available)			
Laguna Joint	(Does Not Apply)						(Does Not Apply)			
Lagunitas	1,809	639	181	4,077	1,186	7,893	1,000	900	16,071	17,971
Larkspur	(Contracted Service - Information Not Available)						(Contracted Service - Information Not Available)			
Lincoln	(Does Not Apply)						(Does Not Apply)			
Marin Comm. Coll. Dist.	(Does Not Apply)						(Does Not Apply)			
Marin Co. Schools	19,256	3,216	8,163	19,321		49,956	19,194		223,291	242,495
Mill Valley	8,862	4,598	1,969	17,822	1,317	34,568	1,184		70,369	71,553
Nicasio	(Does Not Apply)						(Does Not Apply)			
Novato Unified	13,597	4,382	23,426		4,621	46,026[2]	13,657	20,857	100,778	135,286
Reed Union	(Contracted Service - Information Not Available)						(Contracted Service - Information Not Available)			
Ross	(Does Not Apply)						(Does Not Apply)			
San Anselmo	2,223	176	699	700		3,798	1,446	1,723	11,961	15,130
San Rafael	17,428	4,650	13,144		3,702	38,923	16,778	45,500	90,012	152,290
Sausalito	4,761	1,956	4,965	9,213	7,437	28,332	4,070		24,518	28,588
Shoreline Unified	17,350	10,000	16,650	4,000	2,836	50,836	17,051	10,300	37,290	64,641
Tamalpais Union						1,000	375	8,500	3,800	12,675
Union Joint	(Does Not Apply)						(Does Not Apply)			

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[1] Does not include payments for contracted service.

[2] Does not include rebate for community recreation.

Interview Results

Major areas of concern were identified and the specific nature of those concerns discussed. The interviews focused on two major issues: existing school transportation services and alternative concepts for providing school transportation.

School districts not providing transportation services or providing specialized services expressed concerns somewhat different from most and are discussed later in this chapter. They are: Laguna Joint School District, Lincoln School District, Marin Community College District, Marin County Schools Office, Nicasio School District, Tamalpais Union High School District, and Union Joint School District.

Effectiveness of Existing School Transportation

Cost was a major concern of many of the school districts providing transportation services. Inflation has increased the cost of operating buses. In addition to the rising cost of fuel, salaries for classified school personnel have increased between 5 and 10 percent during the last year. Budgets have been increased to account for these rising costs, but for many school districts this has meant tapping district revenue funds and these districts face a drastic financial situation when reserve funds are exhausted.

A ceiling has been placed on school district expenditures by the Dills Bill (Senate Bill 90), imposing strict limitations on the amount of money spent per unit of average daily attendance (a. d. a.). The bill contains an inflation factor based on the assessed valuation of the school district, but no allowance has been made for the double digit inflation which occurred this last year. Some districts are able to increase the a. d. a. allowance 3 percent per year, but most are allowed less than 2 percent under the terms of the bill.

To compound this problem, nearly all school districts have experienced some degree of declining enrollment. Hence average daily attendance has decreased, and with it the total school budget.

Transportation has to compete with other budget categories for scarce financial resources. In view of limited resources and rising costs, school administrators have had to consider cutting transportation services, and several have already done so. Those districts that are most acutely affected by budget shortages have resorted to tax override elections to raise the limit on a. d. a.

allotments and generate needed revenue. In these districts, contingency plans have been considered for reducing the cost of transportation if tax override elections do not pass. School board members in those districts almost unanimously agreed that transportation should not be singled out for budget cuts, but that cuts should be made across the board of programs and services. Without exception, administrators perceived their existing transportation operations as cost effective although the per pupil or per bus mile varied significantly. Differences in cost were attributed to the level of service provided.

There appeared to be a wide range of opinion concerning the level of transportation services that should be provided. Fairfax, for example, does not have a minimum distance policy and will pick up students very close to their school, particularly those youngsters who must cross Sir Francis Drake Boulevard which has no traffic control devices for pedestrian crossing. Novato, on the other hand, has reluctantly increased its minimum distance to effect economies and any further decreases in service are viewed as unacceptable at this time.

The rural districts which depend on parent furnished transportation for their elementary school students recognize that their small size and limited resources restrain them from providing home to school transportation service. This does not imply that additional or supplementary services are not needed. Rather, it emphasizes the economic realities that already restrict these districts and may come to restrict other districts in the future if additional sources of revenue are not forthcoming.

Larger districts with considerable investments in transportation viewed their operation as a necessary resource for the schools and for the community although only Novato maintained an ongoing policy of providing their buses (at cost) to other local agencies for community use. All school districts are concerned with the costs of school transportation services and most are weighing the relative costs and benefits of each element of their services to determine which are essential and which are nonessential services.

Reaction to the importance of home to school transportation differed from district to district. However, most districts providing this service did not regard it as expendable but were receptive to considering methods to increase efficiency. Some of the methods suggested to achieve economies were: increase the minimum bussing distances; reduce the number of bus stops made; and double up runs so that less vehicles would be in use. In some cases manipulation of school starting and dismissal times would achieve some reduction in the number of bus runs made. Both administrators and board members regarded these alternatives as feasible although they recognized that adverse reaction would be inherent from those affected. In attempting cutbacks, some of the districts have already been subjected to a great deal of criticism.

In the Fairfax School District, transportation services were eliminated entirely five years ago because of budget limitations. A community group known as "Parents for Bussing" formed a lobby for home to school transportation. Subsequently, services were reestablished under an independent contractor, and transportation is now provided for children as close as one tenth of a mile from school to overcome the safety problem in crossing Sir Francis Drake Boulevard. Now, however, budget considerations are forcing the school board to reevaluate school bussing in context with all their educational programs so that realistic priorities can be established.

A number of other examples were cited which indicated that while school board members are acutely aware of the value of streamlining or drastically cutting back home to school transportation as an economy measure, they are also conscious of community opposition to such measures. One board member summarized the problem by asking, how could the district educate children if they could not get them to the classroom? And, if the district did not provide the necessary transportation, who would; particularly, in the case of low income families who could not afford alternate means of transportation. It was also pointed out that a community without home to school transportation could not attract young families to live there and would thus lose school attendance and associated revenues over a long term period.

Transportation services for other than home to school commuting included curriculum oriented field trips, transporting the athletic teams for after school games, school picnics or recreational activities. Both Mill Valley and Novato also provide a school to home bus after normal hours for those students involved in activities after school, such as band practice and interscholastic or intramural sports practices.

Some of the districts with non home to school transportation programs have curtailed these services or eliminated them entirely. Most districts have budgeting procedures that limit the number of field trips that may be taken throughout the year. When budgets are exhausted, schools are required to rely on the resources of parent clubs or student councils for funds, or to ask parents to drive their cars for field trips. Most are satisfied with this practice as a means of maintaining an important curriculum need at the lowest cost. However, many emphasized the organizational problems inherent in using parents as a transportation resource.

In the outlying rural school districts such as Bolinas-Stinson and Shoreline, field trips usually involve considerable time and distance. These districts use their own buses for field trips and have not had to limit the number of trips because of lack of transportation funds. In particular, Shoreline Unified School District places a great deal of emphasis on field trips as a curriculum need for rurally based students and would be reluctant to sacrifice transportation service to save money.

Replacing older equipment was a concern expressed by some districts that operate their own buses. The state reimburses districts up to 125 percent of the original cost providing the vehicle is twenty years old. However, the cost of new equipment has risen considerably; and even with the state reimbursement, new equipment purchases represent a considerable budget expense. The alternative has been to repair older equipment and through preventive maintenance keep breakdowns to a minimum. The need for a systematic method for determining the optimum vehicle retirement and replacement procedure was voiced by one transportation supervisor.

Vehicle size was a concern identified by several school districts. Most transportation operations are characterized by a wide variation in bus occupancy from run to run. In addition, bus operations in hilly terrain require the use of smaller buses for maneuverability. A mix of vehicle sizes was viewed as offering the most flexibility in planning bus routes. However, districts are inhibited from changing fleet mix because of the cost of new vehicles.

None of the school districts had a systematic program for determining vehicle depreciation or planning future equipment needs on a long term basis. One case was identified, however, where a reserve fund was set up for the purchase of a new bus when replacement became necessary.

School districts which provide transportation services in general were extremely satisfied with the caliber of drivers employed. Comments were frequently made that the driver is an important asset to a school district not only as a vehicle operator but also as an adjunct to the educational experience. The drivers not only provide for pupil safety, but they maintain control over student behavior enroute to school. Few districts experience much turnover in drivers although some concern was expressed that the higher wages paid by the GGBHTD may lure drivers away from school service.

The transportation needs of the three high schools of the Tamalpais Union High School District are met by a combination of public transit, student transportation, contracted bus service, and the district's own school bus.

Public transit is operated by GGBHTD on three routes oriented principally to serve high school students. Cost is shared by users and by the high school district. Students pay a $. 25 fare to use the buses and the high school district reimburses the GGBHTD for the deficit incurred in operating the school portion of the bus service.

Student transportation, including drivers and carpools, constitutes the most significant portion of home to school travel. This travel is characterized by a range of arrivals and departures during school hours, and students maintain flexible hours at school similar to a junior college.

Contracted bus service is used for two purposes. The school district contracts with a private carrier, the Marin City Transit Company, to provide transportation at no cost to students from Marin City. The school district also uses independent contractors to provide transportation for field trips and athletic events.

The district's own bus is used exclusively for non home to school transportation. This bus is scheduled for retirement and will not be replaced.

This transportation system has evolved through a complex set of circumstances involving a change in transit operators from

Greyhound to the GGBHTD, and changes in the type of service provided in different areas of the school district. The school district is well aware that the existing system of transportation is fragmented and does not offer equal transportation opportunities to all students. However, few alternatives have been considered feasible. Efforts to negotiate increases in GGBHTD services have not been successful, and the district is apprehensive about enlarging its role of home to school transportation.

Concern was expressed over the cost of transportation for students attending the Tamalpais Union High School District. The out of pocket fare cost of $. 50 was identified as a hardship for many families with high school students.

The College of Marin is located in the central portion of the county along a heavily traveled artery. As with most college level educational facilities, no home to school transportation is provided. The basic student travel modes are cars and public transit. Student parking is provided but spaces are not assigned and a considerable amount of time is spent searching for available spaces close to classes. Carpooling was tried twice, once prior to the fuel shortage in 1974 and once after the shortage; both were unsuccessful. Consideration has been given to eliminating parking but lack of alternative transportation convinced the board of trustees that this was inadvisable.

Bus service along Sir Francis Drake Boulevard is not coordinated with class schedules and few buses arrive in both north and south directions at convenient times to serve arriving and departing students. Considerable research has been conducted by a former student of the College of Marin on coordinating the GGBHTD schedules so that they are convenient for students. The college district administration and board regard the College of Marin as a major generator of transit patronage which should receive improved service.

College students pay the regular $. 35 fare. Students in a broad range of income groups are served by the Marin Community College District, and concern was expressed that the fare should be reduced to $. 25.

The Indian Valley Colleges in Novato is a new campus opened in September 1975. It is a half mile west of the present commute service provided by GGBHTD. Facilities are being planned to allow buses to reach the new campus, however no agreement has yet been reached with the GGBHTD as to whether campus service will be provided.

The Marin County Schools Office provides transportation for special education students. Approximately thirty-four buses are in service throughout the county providing transportation between home and school, and for a variety of purposes associated with special education needs. The system serves approximately 350 students and operates on a budget of just over $300, 000. A problem inherent in running an operation of this type is the flexibility required in accommodating student needs. Schedules are constantly being adjusted to meet changing situations; drivers must be especially attentive to the needs of the children in their charge; and the system serves the entire county, so that buses must operate over long distances. Operational concerns are few in terms of the complexity of the system. To simplify the logistics of providing this type of bus service, a policy has been instituted allowing drivers in rural areas to garage vehicles so that daily deadheading can be minimized. The need for a vehicle depreciation and replacement policy was also mentioned. Mechanisms for cutting costs are a general desire of the board of education. However considerable research has been devoted to ways to simplify the system and no viable solutions have been found.

The Laguna Joint, Lincoln, Nicasio, and Union Joint School Districts are without bus transportation. The present mode of travel for both home to school travel and field trips is parent drivers and is regarded as the only satisfactory means within the financial resources of these districts. Alternatives that would relieve parents of the transportation function are welcome but only within cost constraints.

Alternative Concepts for Providing School Transportation

Two concepts were introduced at the beginning of the study as alternatives to the present system of providing school transportation: consolidation of school bus operation and combining school transportation with public transportation. These terms were presented as broad topical concepts with many possible variations. Examples of variations are as follows.

Consolidation: centralizing maintenance facilities, establishing a common pool of backup drivers, contiguous districts combining bus fleets, unifying planning operations, backup equipment agreements between districts, and equipment purchasing pools.

Combination: public transit providing school transportation in a limited number of districts, public transportation providing all home to school transportation, public transit providing non home to school transportation, public transit providing planning resources, school buses as specialized public transit, and school buses leased for community recreation.

The major concepts and some of the above variations were explored in the interviews. The issues identified in the interviews are presented in summary form below:

Deadheading is required if bus fleets are centralized.

Maintenance is cheaper at local garages than in a centralized facility.

A consolidated system would increase wage costs.

Planning flexibility would be lost in a centralized system.

Centralization would raise administrative costs.

Centralized transportation planning would still require planning input from each district.

Community control over bussing would be sacrificed.

Local autonomy over educational services would be jeopardized.

Costs could not be shared equitably either in a consolidated or combined system.

Services would not be allocated equitably.

Public transit vehicles are not as safe as school buses.

Public transit drivers could not and would not control behavior of school children.

Younger children would not be as safe on public transit.

The operator and administrator of a combined system is in question: Marin County Transit District or Golden Gate Bridge, Highway, and Transportation District or some other agency?

Mixing age groups on public transit is not advisable.

The public will not ride on yellow school buses because of appearance and other features.

School buses will depreciate faster if used for other types of service.

Administrative costs of school districts will increase if buses are chartered for community activities.

Summary and Implications

One of the major objectives of the survey phase of the school bus study was to compile a data base that would lead to the identification of school transportation needs, the effectiveness of the existing transportation systems, and the concerns and issues associated with the various concepts of supplying school transportation services. Subsequent analysis of this data provided the framework in which alternatives were developed and evaluated.

Of primary significance in analyzing this data was the establishment of system criteria. These criteria guided the development of alternatives and provided the measures of effectiveness used in selecting the recommended plans for implementation and pilot testing.

The concerns and issues evolved from the survey were classified into two general categories: financial implications and level of service implications. Financial considerations were further divided to include such problem areas as: decreasing enrollment, legislation (S. B 90), rising cost and inflation factors, taxpayer resistance, competing educational programs, and cost effectiveness of existing system.

Level of service implications varied considerably among the school districts and were directly related to the individual policies and priorities of each district. Problem areas related to level of service included: minimum distance requirements, safety, scheduling, number of pickup points, travel time, administration of system, and geographic characteristics.

It was apparent that many of these problem areas were strongly interdependent and had to be considered in context to each other as well as individually.

Table 14 presents a cost summary of existing schools' transportation systems in order to provide a basis for the analytical framework. The summary was structured to provide a general cost comparison among the districts. It is recognized that a number of factors influence the cost per pupil and cost per bus mile. Consequently, these figures were only meaningful as base data and were further refined in the analysis process to reflect the circumstances which contributed to the variances in cost among districts.

TABLE 14

TRANSPORTATION COST SUMMARY

SCHOOL DISTRICT	TOTAL TRANSPORTATION EXPENSES	MILES TRAVELED	COST PER MILE	PUPILS TRANSPORTED[1]	COST PER PUPIL	DISTRICT ADA	COST PER ADA
Bolinas-Stinson	$ 14.004	19,022	$ .74	222	$ 62.49	223	$63.20
Dixie	40,484	30,156	1.34	382	105.98	4,136	9.78
Fairfax	20,587	23,571	.87	300	68.62	951	21.65
Kentfield	12,400	4,356	2.85	159		1,320	9.39
Laguna Joint		Does Not Apply					
Lagunitas	25,563	21,774	1.17	464	55.09	498	51.33
Larkspur	21,812	27,893	.78	200	109.06	1,499	14.55
Lincoln		Does Not Apply					
Marin Comm. Coll. Dist.		Does Not Apply					
Marin Co. Schools	308,186	603,246	.51			783	393.60
Mill Valley	109,267	89,108	1.23	1,188	91.98	3,163	34.55
Nicasio		Does Not Apply					
Novato Unified	188,372	203,857	.92	2,087	90.26	10,959	17.19
Reed Union	45,470	43,412	1.05	770	59.05	1,886	24.11
Ross		Does Not Apply					
San Anselmo	18,928	13,000	1.46	305		1,811	10.45
San Rafael	191,214	183,588	1.04	1,980	96.57	8,669	22.06
Sausalito	53,355	30,193	1.77	380	140.41	543	98.26
Shoreline Unified	115,523	152,289	.76	679	170.14	816	141.57
Tamalpais Union	74,371					5,811	12.80
Union Joint		Does Not Apply					
GRAND TOTAL	$1,239,626						

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[1] Pupils transported between Home and School only.

6. SYSTEM CHARACTERISTICS

Routes

School district bus routes cover 814 miles of roadway in Marin County, ranging from 2.2 miles in the Kentfield School District to 115 miles in the Shoreline Unified School District. Most major streets and highways are traveled, and all populated portions of the county are served. Considerable overlap with public transit routes exists in the eastern portion of the county.

Within each school district, route coverage depends on the proximity of residential areas to schools. Many primary schools are in locations that are accessible to the surrounding neighborhood, and bus transportation is not required for travel to and from school.

Maps of school district bus routes and bus stop locations are contained in Appendix XIII.

Vehicle routing must achieve the task of linking dispersed population areas with scattered school locations within the constraints of school starting and dismissal times and with a limited number of buses. Two routing methods are used to accomplish this task: continuous routing and selective routing. A combination of both methods is used in each school district.

Routes are planned to link all neighborhoods and all schools in a continuous loop. Buses make multiple runs on the route to accommodate different school starting and dismissal times. Students are picked up and dropped off in a continuous pattern, and several grade levels are frequently served in one run. A feature of this system is that deadheading, or running empty, is minimized.

Continuous routing is suited to school districts with evenly distributed population and street patterns which allow loop routes. Fairfax, San Anselmo, and Larkspur School Districts have conditions that allow the greatest use of continuous routing.

Routes are planned to serve one school [illegible] one community at a time. Selective routing is applicable where outlying population areas are served. This situation is experienced by all the school districts to some degree but to the largest extent by Shoreline Unifed School District.

Deadheading is frequently a result of selective routing, particularly where remote area service is involved. In uniformly populated areas, deadheading is minimized by planning bus routes to maintain continuous service between communities and schools. Under these conditions, selective routing functions similarly to continuous routing.

Schedules

Bus schedules normally identify the location of each stop by giving the names of the intersecting streets or major landmarks and the bus arrival time. Schedules are used as a public information tool by those school districts that make them available at the beginning of the school year, and as a control over bus operations. Times are accurate to one minute, and times at major loading and unloading points are precisely estimated so that the buses continue on their route with a minimum of delay.

Patronage

The number of students transported by the school district varies on an annual basis and on a daily basis. The factors that determine the patronage level are as follows.

School attendance experienced a steady growth until recently. The trend has been reversed, and recent declines in enrollment have contributed to some reduction in the number of students bussed.

State procedures for reimbursing transportation expenditures allow reimbursement for students who must be bussed because walking is hazardous.

A reduction in enrollment has forced some districts to close schools, resulting in greater travel distances for the population shifted to other schools. This has increased the need for bus transportation.

School transportation is limited to specific grade levels in some districts to reduce the amount of bussing needed.

The state prescribes the distances from schools within which students live where transportation costs may not be eligible for reimbursement. Districts also have their own policies on minimum distances for bussing which vary above and below the state guidelines.

Bus patronage increases considerably during winter months when rainy weather makes bussing more attractive. Students who intermittently obtain rides from parents or friends also cause variations in day to day patronage; high school patronage decreases a short time after the beginning of each semester as students join carpools. Patronage is also lower in the spring than in the fall for the same reason.

The percentage of students bussed varies from district to district in response to the variables listed above. Table 13 shows, by grade level, the number of students bussed in each district.

Vehicles

The condition of the total school bus fleet in the county is excellent. The survey of equipment indicated no inoperative equipment. The median purchase date of the total fleet is 1967. Less than 3 percent are more than twenty years old.

An inventory of school buses, contained in Appendix XIV, shows unit number, passenger capacity, fuel requirement, year of purchase, and cost.

School district personnel were queried on special operating problems encountered in providing bus transportation. Hilly terrain

TABLE 15

BUS PATRONAGE

Bus Transportation Provided by School Districts

SCHOOL DISTRICT	District Average Daily Attendance	Pupils Bussed		Grades Provided Bus Transportation
		No.	% of ADA	
Bolinas-Stinson	223	222	99%	All Grades
Dixie	4,136	382	14%	"
Fairfax	951	300	40%	"
Kentfield	1,320	159	15%	7-8
Laguna Joint	22	-		
Lagunitas	498	464	89%	All Grades
Larkspur	1,499	200	14%	
Lincoln	19	-		
Marin Community College District	6,482	-		
Marin County Schools	350	350	100%	All Grades
Mill Valley	3,163	1,188	37%	K-4
Nicasio	45			
Novato Unified	10,959	2,087	20%	All Grades
Reed Union	1,886	770	41%	All Grades
Ross	493	-		
San Anselmo	1,811	305	19%	K-4
San Rafael	8,669	1,980	23%	All Grades
Sausalito	543	380	75%	All Grades
Shoreline Unified	816	679	83%	All Grades
Tamalpais Union	5,811	720	10%	All Grades
Union Joint	9	-		
TOTAL	49,705*	10,186	21%	

*Includes special education students bussed by Marin County Schools was mentioned as a factor limiting the size of buses that could be operated. However, no school district operates under conditions where special equipment is needed.

The Marin County Schools Office operates buses especially equipped with wheelchair lifts to transport handicapped students. These are noted in Appendix XIV.

Performance Analysis

Analysis of the performance of school bus systems was designed to achieve two objectives. One objective was to identify factors that should be considered in developing alternatives to current systems. A second objective was to analyze the operating characteristics of each school district system. A thorough evaluation of operations on a district by district basis was not possible. However, important variables contributing to system effectiveness were identified.

School bus systems have a set of operating criteria similar to the public transit industry. Although the actual standards are different in each case, the basic operating criteria are the same: safety, reliability, schedule adherence, and efficiency.

Safety is the paramount consideration in providing school transportation. Federal regulations contain detailed specifications on the physical safety requirements of school buses. The state specifies the manner in which school buses should be operated and requires both routine inspection of equipment and routine training of drivers. In addition, the California Highway Patrol is responsible for approving bus routes and bus stop locations.

As a result of these standards, a high level of safety has been maintained. Accidents involving bus vehicles have occurred, but no injuries to occupants have resulted.

Routine inspection of vehicles and preventive maintenance programs are in general use throughout the county. No school transportation system reported a problem with enroute breakdowns. Reliability does not appear to be a problem as long as the present standards of maintenance and inspection are retained.

No school district reports consistent difficulties in meeting schedules. Occasional delays are experienced at the beginning of the school year when new schedules are in effect. Otherwise, performance is consistently high.

School transportation systems are universally committed to the basic operating standards discussed previously. Safety, reliability, and schedule adherence cannot be changed without altering a fundamentally accepted level of service. However, efficiency of operation can still vary widely from district to district.

Evaluation of Efficiency

Ideally, school transportation operates according to laws of supply and demand similar to those for public transit. When the demand for transportation increases, an attempt is made to provide more buses and drivers to meet that demand. However, a revenue component that provides at least a partial incentive for expansion of service is built into the public transit supply and demand equation. No such revenue is provided by an expansion of school bus service. Funds for expansion of school bus service must come from the general school budget. If these are not available, the only method to meet increased demand without adding buses and drivers is to increase the efficiency of the bus operation. The same method applies in a situation where buses and drivers must be cut back to reduce transportation costs but where demand remains unchanged. A premium is placed on operating efficiency in both cases.

Efficiency can be measured by comparing the resources used to meet demand (number of buses) with the amount of service provided (number of students). However, in comparison of school districts, transportation systems that serve a low density population will be handicapped because comparatively more buses are required to cover greater distances. A mileage factor may be added to equalize the difference in district size, but this does not adequately reflect the low density characteristics of rural school districts. In short, a measure of efficiency that is both simple and applicable to all districts is difficult to establish.

Lacking a valid single measure, two measures were selected that approximately gauge efficiency:

1. Ratio of Pupils Bussed to Number of Buses: The greater the number of students that can be transported with a given number of buses, the more efficient the transportation operation. Large, sparsely populated school districts should be weighted to account for the difficulty of providing transportation over long distances.

2. Ratio of Daily Bus Mileage to Route Network Mileage: The fewer miles that need to be traveled daily over the route network, the greater the efficiency of the transportation operation.

An application of the above measures to the school districts is shown in Tables 16 and 17. The purpose of these tables is to demonstrate the range of values that exists, not to rank districts as high or low. The transportation program operated by the Marin County Schools Office for special education students is unique and does not readily compare with school district transportation programs.

A high value on the pupil to bus ratio combined with a low value on the route network ratio means that few buses are being used to transport students and that bus runs are effectively planned to minimize mileage. This combination of values has greater significance in a large, sparsely populated school district than in a small densely populated one.

Existing demand can be met with fewer resources if several key factors are changed. One of these factors -- school starting and dismissal times -- is external to the transportation operation and only partially controllable.

TABLE 16

SYSTEM PERFORMANCE MEASURE
Ratio of Pupils Bussed to Number of Buses

SCHOOL DISTRICT	Pupils Bussed	Buses In Home to School Use	Ratio of Pupils to Buses
Bolinas-Stinson	222	2	111
Dixie	380	4	95
Fairfax	300	2	150
Kentfield	159	1	159
Laguna Joint			
Lagunitas	464	2	232
Larkspur	200	2	100
Lincoln			
Marin Community College District			
Marin County Schools	350	32	11
Mill Valley	1,188	6	198
Nicasio			
Novato Unified	2,087	14	149
Reed Union	770	4	192
Ross			
San Anselmo	305	2	152
San Rafael	1,980	15	127
Sausalito	380	4	95
Shoreline Unified	679	12	56
Tamalpais Union	720	14	51
Union Joint			
TOTAL	10,186	116	87.8

TABLE 17

SYSTEM PERFORMANCE MEASURE
Ratio of Daily Bus Mileage to Route Network Mileage

SCHOOL DISTRICT	Daily Miles Between Home and School	Route Network Miles	Ratio
Bolinas-Stinson	102	6.8	15.0
Dixie	133	19.2	6.9
Fairfax	125	7.2	17.4
Kentfield	23	2.2	10.4
Laguna Joint			
Lagunitas	112	5.7	19.6
Larkspur	144	12.6	11.4
Lincoln			
Marin Community College District			
Marin County Schools	3300*	150.0*	22.0
Mill Valley	509	29.2	17.4
Nicasio			
Novato Unified	1,023	56.0	18.3
Reed Union	227	11.2	20.3
Ross			
San Anselmo	69	10.0	6.9
San Rafael	884	51.2	17.3
Sausalito	172	14.6	11.8
Shoreline Unified	786	115.4	6.8
Tamalpais Union	95	18.9	5.0
Union Joint			
TOTAL	7,704	510.2	15.1

*Estimated.

A second factor -- deadheading -- is internal to the bus operation and fully controllable. The key factors are ranked by the degree to which they can be controlled as part of the transportation operation as follows:

Noncontrollable	school starting and dismissal times,
↑	prebell arrival times,
	maximum travel time,
	frequency of bus stops,
	bus occupancy,
↓	layovers,
Controllable	deadheading.

A dispersion of starting and dismissal times enables a smaller number of buses to operate over a relatively longer period to transport students. Mileage on the remaining fleet would increase, and prebell waiting times would be increased for students arriving on early buses.

The time of arrival before the first bell in the morning is limited by the requirement that school personnel provide supervision. Extending this period would allow more flexibility in route and schedule planning. Current prebell arrival times are shown in Table 18.

TABLE 18

PREBELL ARRIVAL TIME

SCHOOL DISTRICT	Range of Arrival Times (Minutes)	Average Pre-Bell Arrival Time (Minutes)
Bolinas-Stinson	5	5
Dixie	0 - 38	13
Fairfax	1 - 32	14
Kentfield	15 - 55	38
Laguna Joint		
Lagunitas	1 - 10	6
Larkspur	2 - 45	19
Lincoln		
Marin Community College District		
Marin County Schools	-20 - 15	-5
Mill Valley	0 - 45	17
Nicasio		
Novato Unified	0 - 44	16
Reed Union	1 - 35	16
Ross		
San Anselmo	5 - 35	13
San Rafael	0 - 44	17
Sausalito	0 - 19	6
Shoreline Unified	0 - 23	19
Tamalpais Union	6 - 38	18
Union Joint		
AVERAGE	2 - 32	15

Routes with low patronage can be extended to increase the number of students bussed at one time. An increase in travel times and a corresponding decrease in deadheading and total bus hours would result. Maximum travel times between first pickup and last dropoff are shown in Table 19.

The number of bus stops can be reduced to shorten routes. Some increase in boarding times at remaining stops can be expected because of the larger concentration of students.

Increased occupancy improves bus utilization and may reduce bus requirements. Average bus occupancy rates are not high for all districts, as demonstrated by Table 20.

Nonessential layovers can be eliminated from schedules to increase available running time, particularly in peak usage periods.

Deadheading can be eliminated by using the continuous routing technique in areas where this technique is possible.

TABLE 19

TRAVEL TIMES

SCHOOL DISTRICT	Range of Maximum Travel Times (Minutes)	Average Maximum Travel Times (Minutes)
Bolinas-Stinson	15 - 22	18
Dixie	6 - 31	14
Fairfax	5 - 52	20
Kentfield	10 - 22	16
Laguna Joint		
Lagunitas	9 - 22	13
Larkspur	18 - 30	20
Lincoln		
Marin Community College District		
Marin County Schools	3 - 75	35
Mill Valley	12 - 38	24
Nicasio		
Novato Unified	8 - 40	20
Reed Union	6 - 28	13
Ross		
San Anselmo	1 - 35	15
San Rafael	8 - 25	16
Sausalito	13 - 33	21
Shoreline Unified	10 - 95	50
Tamalpais Union	18 - 68	34
Union Joint		
AVERAGE	9 - 39	22

TABLE 20

SCHOOL BUS OCCUPANCY RATES

SCHOOL DISTRICT	Range of Occupancy	Average Occupancy Rates	Median Occupancy Rates
Bolinas-Stinson	25% - 100%	80%	80%
Dixie	3% - 91%	44%	5[illegible]%
Fairfax	8% - 100%	33%	-
Kentfield	14% - 67%	42%	48%
Laguna Joint			
Lagunitas	[illegible]% - 94%	40%	38%
Larkspur	3% - 88%	33%	29%
Lincoln			
Marin Community College District			
Marin County Schools	70% - 100%	85%	80%
Mill Valley	45% - 100%	80%	90%
Nicasio			
Novato Unified	32% - 100%	59%	64%
Reed Union	17% - 100%	69%	83%
Ross			
San Anselmo	15% - 91%	50%	-
San Rafael	33% - 100%	76%	79%
Sausalito	16% - 100%	55%	64%
Shoreline Unified	38% - 90%	64%	66%
Tamalpais Union	44% - 100%	80%	-
Union Joint			
AVERAGE	23% - 92%	57%	63%

7. ADMINISTRATIVE CHARACTERISTICS

Differences in the analysis of administrative policies and practices that could adversely or constructively affect a consolidation effort were considered. Functions currently performed by each district, and centralized maintenance and administrative resources available for a consolidated operation were also considered.

Personnel

All districts providing transportation employ drivers; others employ mechanics and administrative personnel as well. Except for cases where backup drivers are employed for a short term, all personnel are classified employees and subject to full employment protection under state education code guidelines.

Table 12, page 54, shows that school districts employ three main categories of drivers They are: fulltime personnel employed only as drivers, fulltime personnel employed parttime as drivers, and parttime personnel employed on a split shift.

Providing that a consolidated operation offered hours of work equivalent to those that presently exist, each type of driver could be accommodated.

School bus wages vary from $3.50 per hour to $5.25 per hour, not including fringe benefits. This wage differential would have to be substantially reduced in a consolidated operation. Table 21 shows the range of wages for each school district.

Mechanics are often employed as drivers, and in most cases earn similar wages. The conditions discussed above with regard to drivers apply to mechanics. Four school districts employ mechanics: Dixie, Novato, San Rafael, and Shoreline.

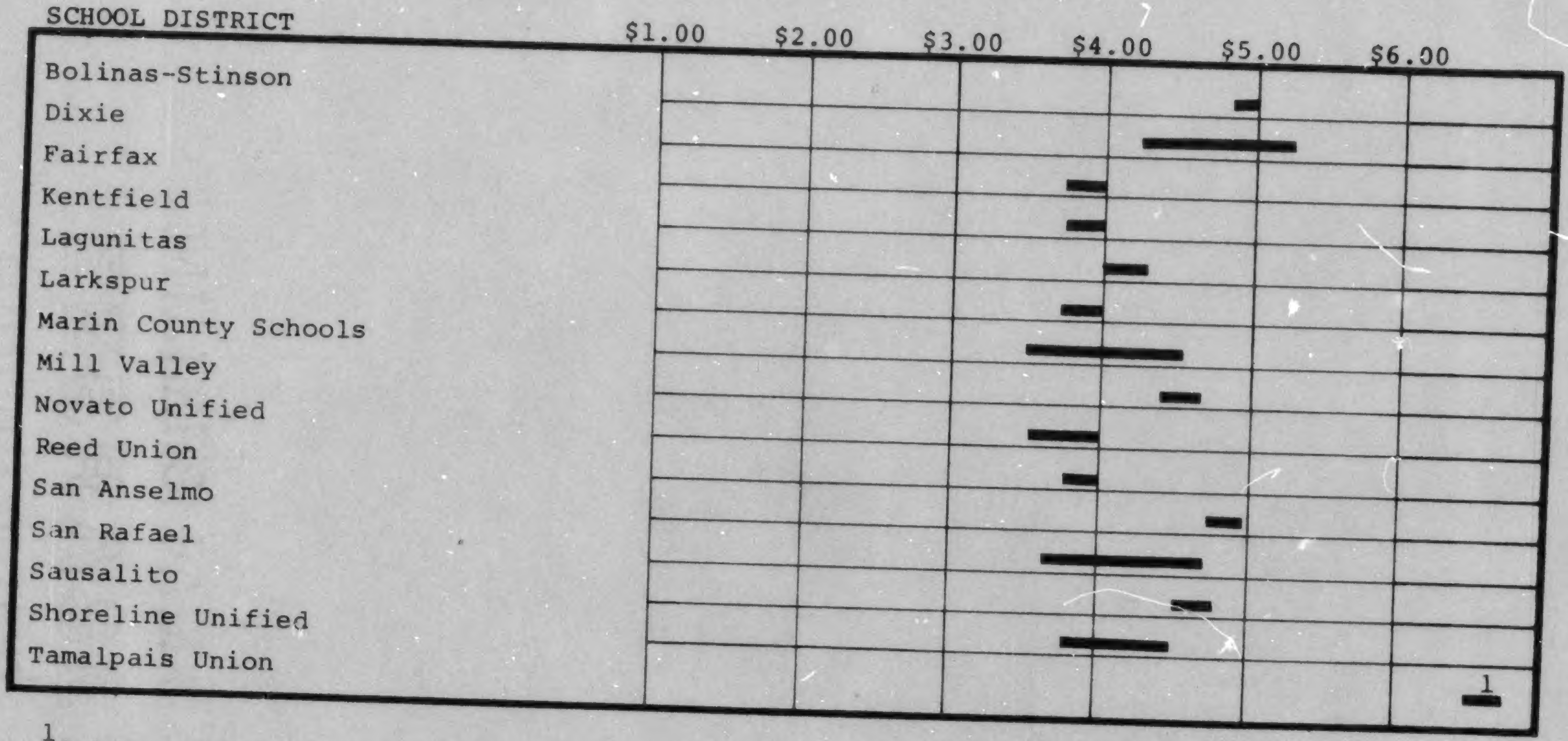
Nine school districts charge administrative expenses to the transportation budget. These expenses vary from a nominal charge for miscellaneous administrative functions to a major budget line item in San Rafael, Novato, and Shoreline School Districts and the Marin County Schools Office. In these cases the transportation operation requires fulltime supervisory personnel.

Equipment

School districts make their own arrangements for purchasing vehicles. Differences in demand for school buses exist at the present time. San Rafael School District has a surplus of buses; however,

TABLE 21

WAGE RATES
Range (Dollars)



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[1] Golden Gate Transit wage rates.

other districts are short of buses. For example, the Sausalito School District needs equipment either fulltime or on a backup basis.

Most school districts contract for vehicle maintenance. Dixie, Novato, San Rafael, and Shoreline School Districts have their own maintenance facilities.

Planning

Similar planning practices are followed in all school districts. Typically, this involves an informal process whereby the previous year's routes are repeated at the beginning of the following year, and adjustments are made on the basis of experience during the first two weeks of the semester. Only San Rafael bases its planning on estimated demands prior to the start of the school year.

School districts contracting for bus service normally obtain planning assistance from the contractor and have no inhouse expertise. The districts included are: Fairfax, Kentfield, Larkspur, and Reed Union.

Separable Functions

Most of the major administrative functions (e.g. personnel, vehicle purchase, maintenance, and operation) carried out separately by school districts could be centralized in a consolidated system.

Planning is generally considered to be a nonseparable function because of the level of intradistrict coordination required in establishing school and transportation schedules that are satisfactory to all district personnel. However, school districts that contract for bus service use the planning expertise of the contractor and avoid a separate administrative expense for this function. Using this as an example, the possibility exists for centralized planning on a consulting basis.

Availability of Centralized Administrative and Maintenance Resources

Substantial resources are available to meet the requirements of a consolidated transportation operation if the existing resources of school districts are utilized. Table 22 summarizes the administrative and maintenance resources that exist. Four school districts are able to provide resources in both areas: Dixie, Novato, San Rafael, and Shoreline.

TABLE 22

SCHOOL DISTRICT TRANSPORTATION RESOURCES

SCHOOL DISTRICT	OWN MAINTENANCE FACILITY	ADMINISTRATIVE CAPABILITY	ADMINISTRATIVE AND MAINTENANCE RESOURCES
Bolinas-Stinson			
Dixie	X	X	X
Fairfax			
Kentfield			
Laguna Joint			
Lagunitas		X	
Larkspur			
Lincoln			
Marin Community College District			
Marin County Schools		X	
Mill Valley		X	
Nicasio			
Novato Unified	X	X	X
Reed Union			
Ross			
San Anselmo		X	
San Rafael	X	X	X
Sausalito		X	
Shoreline Unified	X	X	X
Tamalpais Union			
Union Joint			

Analysis of Costs

The approach used to analyze costs was twofold. Transportation expenditures were analyzed and compared with the level of service to indicate cost effectiveness. State reimbursement procedures were briefly examined to determine the relative value of state aid.

Transportation Expenditures: School district expenditures for transportation were analyzed to determine the full cost of operating and administering school transportation. These expenditures were previously reported in Table 13, page 56, itemized as follows: (1) gas, oil, and lubrication, (2) tires and tubes, (3) parts and equipment, (4) maintenance, (5) insurance, (6) administrative personnel, (7) maintenance personnel, and (8) drivers.

Other expenditures such as special contractual arrangements were added to develop a total cost of transportation, as shown in Table 23.

Capital costs were not included in this analysis, since vehicles are purchased as required and no allowance is made for capital depreciation.

TABLE 23

TOTAL TRANSPORTATION COSTS

SCHOOL DISTRICT	OPERATING COST[1]	PERSONNEL COST[2]	OTHER COSTS	TOTAL COST
Bolinas-Stinson	3,715	9,632		13,347
Dixie	6,416	38,000		44,416
Fairfax	DNA	DNA		20,587
Kentfield	DNA	DNA		12,900
Lagunitas	7,893	17,971		25,864
Larkspur				21,812
Marin County Schools	49,956	242,485		292,441
Mill Valley	34,568	71,553	3,283[3]	109,404
Novato Unified	46,026	135,286		181,312
Reed Union	DNA	DNA		45,470
San Anselmo	3,798	15,130		18,928
San Rafael	38,923	152,290		191,213
Sausalito	28,332	28,588		56,920
Shoreline Unified	50,836	64,641		115,477
Tamalpais Union	1,000	12,675	79,196[4]	92,871
TOTAL	271,463	788,251	82,479	1,242,962

DNA - Does not apply

[1] Includes fuel, lubricants, tires, tubes, maintenance, repairs.

[2] Includes drivers, mechanics, administrative staff.

[3] Payment to private contractor for home-to-school transportation.

[4] Includes: $25,696 payment to Marin City Transit Co.; $35,000 to Marin County Transit District for home-to-school transportation; and $18,500 to private contractors for non-home-to-school transportation.

Cost effectiveness was measured by computing a value of cost per mile and a value of cost per student per day. Cost per mile is based on the total miles of bus travel and the total expenditure for bus transportation. Cost per student per day is based on home to school mileage and patronage data. These values are shown in Table 24.

Cost per mile values are widely varied among districts. The largest values, $3.65 and $3.20 are found in contracted services: Marin City Transit Service and Kentfield School District, respectively. High costs in these cases may be attributed to the terms of the service contract. For example, Kentfield negotiated a contract for the 1973-74 school year which billed the district for a minimum number of hours and miles of daily bus transportation. However, Kentfield's transportation requirement was below the minimum terms of the contract and more money was spent for transportation than was actually necessary.

Relative to district operated transportation, contracted service generally exhibited a higher degree of cost effectiveness, using as examples the figures for Fairfax, Larkspur, and Reed.

TABLE 24

COST ASSIGNMENT
Cost per Mile and Cost per Student per Day
1973 - 1974

SCHOOL DISTRICT	A Total Transportation Cost	B Annual Total Miles	C Daily Home-to-School Miles	D Students Transported between Home & School	E Cost per Mile[1]	F Cost per Student per Day[2]
Bolinas-Stinson	$ 13,347	19,022	102	222	$ .70	$ .32
Dixie	44,416	30,156	133	382	1.47	.51
Fairfax	20,587	23,571	125	300	.87	.36
Kentfield	12,900	12,025	23	159	1.[illegible]5	1.95[6]
Lagunitas	25,864	21,774	112	464	1.18	.29
Larkspur	21,812	27,893	144	200	.78	.56
Marin County Schools	292,441	603,246	3,447	350	.48	4.72
Mill Valley	109,404	103,907	509	1,188	1.05	.45
Novato Unified	181,312	203,857	1,017	2,087	.89	.44
Reed Union	45,470	43,412	227	770	1.05	.31
San Anselmo	18,928	12,075	69	305	1.57	.36
San Rafael	191,213	183,588	883	1,980	1.04	.46
Sausalito	56,920	32,684	172	380	1.74	.79
Shoreline Unified	115,477	152,289	786	679	.76	.88
Tamalpais Union	35,000[3] 25,696[4] 32,175[5]	109,000 7,040	660 40	580 140	1.21[7] 3.65	1.38[7] 1.04
ALL DISTRICTS	1,242,962	1,585,539	8,449	10,186	$ .78	$ .65

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[1] Cost per mile: $E = \frac{A}{B}$

[2] Cost per student transported per day: $F = \frac{C \times E}{D}$

[3] Payment to Golden Gate Transit.

[4] Contract with Marin City Transit Co.

[5] New On-Home-to-School Transportation Costs.

[6] Based on Home-to-School transportation budget of $7,900; mileage of 4,025; and cost per mile of $1.96.

[7] Total cost based on Tam District payment of $35,000; $51,040 out-of-pocket cost to students; and $54,000 paid by MCTD to Golden Gate Transit.

Relative to public transit, most of these cost figures are low. Golden Gate Bridge, Highway, and Transportation District charges mileage at $.65 for off peak service and $1.63 for peak period service.

Cost per student values range from $.31 per day to $4.72. The high values, $4.72 for Marin County Schools Office and $1.04 for Marin City Transit Service, are attributable to the specialized nature of these systems. These costs are generally lower than the equivalent cost of public transportation, using a rate of $.70 per day for two trips on GGBHTD.

A breakdown of costs per mile by budget categories is shown in Table 25.

Drivers account for the largest share of costs, ranging from a value of $.37 per mile for the Marin County Schools Office to a value of $.92 per mile for San Anselmo School District. Most of this variation is attributable to wage rate. However, some variation is attributable to the operating efficiency of the transportation system and the method by which drivers are paid. For example, the Bolinas-Stinson Union School District schedules runs with a minimum of layover or nonproductive time, and drivers are paid on a split shift basis.

TABLE 25

COST ASSIGNMENT
Breakdown of Costs per Mile

SCHOOL DISTRICT	DRIVERS	ADMINISTRATION	FUEL AND LUBRICANTS	TIRES AND TUBES	MAINTENANCE AND REPAIR	INSURANCE	TOTAL COST PER MILE
Bolinas-Stinson	.51	--	.04	.03	.06	.06	$ .70
Dixie	.80	.16	.09	.03	.35	.04	1.47
Fairfax	NA	NA	NA	NA	NA	NA	.87
Kentfield	NA	NA	NA	NA	NA	NA	1.05
Lagunitas	.74	.05	.08	.03	.22	.05	1.18
Larkspur	NA	NA	NA	NA	NA	NA	.78
Marin County Schools	.37	.03	.03	.005	.05	NA	.48
Mill Valley	.68	.01	.09	.04	.21	.02	1.05
Novato Unified	.49	.07	.07	.02	.22	.02	.89
Reed	NA	NA	NA	NA	NA	NA	1.05
San Anselmo	.99	.12	.18	.01	.27	NA	1.57
San Rafael	.49	.09	.10	.02	.32	.02	1.04
Sausalito	.74	.12	.15	.05	.45	.22	1.74
Shoreline Unified	.24	.12	.11	.07	.20	.02	.76
Tamalpais Union	NA	NA	NA	NA	NA	NA	1.21/3.65
AVERAGE	.60	.09	.094	.030	.24	.056	1.05/1.22

Fuel and lubrication costs exhibit greater variation than can be attributed to differences in terrain and operating methods. Other factors may be vehicle condition and fuel costs.

Maintenance and repair costs for most school districts are between \$.20 and \$.50 per mile. Typically, the larger transportation systems maintaining their own vehicles have the lowest maintenance cost per mile. However, smaller systems contracting for repair and maintenance, such as Lagunitas School District, also exhibit a low cost per mile.

Transportation Reimbursement: The California State Department of Education reimburses school districts for expenses incurred in home to school transportation according to a formula based on the following factors:

(1) Proportion of transportation expense incurred in non home to school transportation;

(2) School district assessed valuation;

(3) Median transportation expenditures statewide; and

(4) Deductions for income received.

The first category is a minor component in the computation of state reimbursement and one that school districts can control. The second and third categories are of major importance because they are both noncontrollable and directly affect the amount of reimbursement a school district can receive.

Legislation has been introduced at the state level to provide a more equitable approach to funding education under the requirements of the California Supreme Court decision based on the Serrano vs. Priest Case. Bills pending before the legislature have provisions for changing the procedures by which state aid is provided for school transportation. Other legislation has been introduced specifically to provide more state assistance for school transportation. Assembly Bill 1346 would change the percentage of assessed valuation assigned as a basic school district transportation cost.

Under existing procedures, a school district is responsible for all transportation expenses incurred up to a percentage amount of the assessed valuation of the district. This rate is .0002 percent for elementary school districts and .0003 percent for unified school districts. The amount provided by these tax rates is shown in Table 26.

TABLE 26

TRANSPORTATION REIMBURSEMENT
Eligibility for State Aid and Aid Received

SCHOOL DISTRICT	ASSESSED VALUATION 1973-1974[1]	MINIMUM TRANSPORTATION EXPENSE QUALIFYING FOR REIMBURSEMENT	APPROVED TRANSPORTATION EXPENSE	STATE REIMBURSEMENT[2]
Bolinas-Stinson	13,802,147	2,760	13,310	5,841
Dixie	81,967,979	16,393	31,769	7,687
Fairfax	23,955,459	4,791	18,788	6,998
Kentfield	57,357,190	11,471	--	--
Lagunitas	10,307,963	2,061	23,111	14,571
Larkspur	53,499,756	10,700	18,615	4,100
Marin County Schools	DNA	DNA	292,985	149,553
Mill Valley	110,020,453	22,004	105,194	45,889
Novato Unified	117,005,391	[illegible]5,101	166,513	72,232
Reed Union	76,188,937	15,237	41,481	13,122
San Anselmo	52,011,830	10,402	--	--
San Rafael	249,363,072	74,808	159,134	42,163
Sausalito	42,281,630	8,456	49,996	22,713
Shoreline Unified	31,199,027	9,359	112,416	72,159
Tamalpais Union	--	--	--	--
TOTAL	918,960,834		1,032,312	457,028

DNA - Does not apply. State reimbursement is based on pupils transported.

[1] Modified assessed valuation as reported on Form J-141, except Kentfield and San Anselmo. Assessed valuations for Kentfield and San Anselmo were substituted from Supt. of Schools Statistical Bulletin #5, 1974.

[2] Reported on Form J-141.

Above this base amount, the district is responsible for a proportion of transportation expenses, based on the difference between the transportation expense and the tax yield of higher tax rates. The transportation expense approved for each school district and the amount reimbursed by the state is shown in Table 26.

The figures demonstrate that no school district accrues a basic tax yield even approximating the amount spent for transportation. The difference between expenditures and reimbursements leaves each district with a net expenditure that is still considerably higher than the basic tax yield.

State reimbursement procedures include a penalty for exceeding a basic level of expenditure computed on average bus cost per day of use. The basic level is the median expenditure statewide plus a margin of 25 percent. School districts are allowed higher or lower expenditures based on the size of buses used and the number of hours per day each bus is in use. This limit was exceeded during the 1973-74 year by Dixie, Kentfield, Lagunitas, San Rafael, and Shoreline School Districts, as shown in Table 27.

TABLE 27

SCHOOL TRANSPORTATION EXPENDITURES PER BUS PER DAY

Comparison of Marin County School Districts with State

SCHOOL DISTRICT	STATE MEDIAN	SCHOOL DISTRICT EXPENDITURES	MAXIMUM ALLOWABLE (STATE MEDIAN + 25%)
Bolinas-Stinson	$ 61.36	$ 40.00	$ 76.70
Dixie	39.84	60.60*	49.80
Fairfax	74.20	53.61	92.75
Kentfield	39.84	73.29*	49.80
Lagunitas	45.91	60.72*	57.39
Larkspur	74.20	53.59	92.75
Marin County Schools	DNA	DNA	DNA
Mill Valley	61.36	74.94	76.70
Novato Unified	61.36	68.25	76.70
Reed Union	61.36	63.59	76.70
San Anselmo	57.61	53.77	72.01
San Rafael	39.84	56.79*	49.80
Sausalito	61.36	75.36-	76.70
Shoreline Unified	39.84	51.65*	49.80
Tamalpais Union			

***Exceeds maximum allowed by State.**

DNA - Does Not Apply.

8. CURRENT TRANSIT UTILIZATION

The purpose of this chapter was to identify transportation resources in Marin County that have potential for providing school transportation. Federal and state regulations were investigated to determine the restrictions that apply to the use of vehicles other than school buses for home to school transportation. Marin transportation services were ranked in terms of major or minor potential for school transportation. An analysis of operating characteristics, including routes, schedules, patronage, and cost, was conducted for transportation service with major potential for school transportation.

A review of federal and state school transportation regulations and an evaluation of Marin County transportation resources is followed by an analysis of characteristics of Golden Gate Bridge, Highway, and Transportation District, the only transportation service with major potential for providing school transportation.

Transit Eligibility for School Transportation

The high degree of concern for pupil safety observed by the school bus industry and by school bus operators is explicitly defined by a variety of federal and state codes in terms of operating regulations for vehicles used to transport school children. Major emphasis is placed on structural characteristics and equipment of school bus vehicles.

Not all transit vehicles meet these standards, and the conditions under which these standards are applied and enforced are of major importance in evaluating the applicability of public transit to school bus operations. The conditions under which vehicles for transporting school children may be used and Marin County transit operations in terms of eligibility for school transportation are discussed.

Federal and State Regulations

Federal regulations on the provision of school transportation are contained in the National Highway Safety Program Standard No. 17.[3]

Vehicle identification and equipment regulations were amended in 1973 to permit public transit vehicles with Type I capacity (more than sixteen passengers) to be used for home to school transportation. The new regulation eliminates the requirement that buses be painted yellow and black, and provides that signing may be limited to "school bus" signs at front and back when the bus is used exclusively in home to school transportation. The regulation is stated as follows:

---

[3] U. S. Department of Transportation, National Highway Traffic Safety Administration. Pupil Transportation Safety, (Washington, D. C.: Government Printing Office, May 1973).

> IV. B. Identification and equipment of school vehicles.
>
> 2. Type I school vehicles that are operated by a privately or publicly owned local transit system, and used for regular common carrier transit route service as well as special school route service, shall meet all of the requirements of this standard, except as follows:
>
> a. Such vehicles need not be painted yellow and black as required by paragraphs 1 (b) and 1 (c) of this section.
>
> b. In lieu of the requirements of paragraph 1 (a) of this section, such vehicles shall, while transporting children to and from school, be equipped with temporary signs, located conspicuously on the front and back of the vehicle. The sign on the front shall have the words "School Bus" printed in black letters not less than 6 in high, on a background of national school bus glossy yellow, as specified in paragraph 1 (b) of this section. The sign on the rear shall be at least 10 ft^2 in size and shall be painted national school bus glossy yellow, as specified in paragraph 1 (b) of this section, and have the words "School Bus" printed in black

> letters not less than 8 in high. Both the 6-in and 8-in letters shall be Series "D" as specified in the Standard Alphabets -- Federal Highway Administration, 1966.
>
> c. Where such vehicles are used only in places where use of warning signal lamps is prohibited, they need not be equipped with the signal lamps required by paragraph 1 (d) of this section.

State regulations are contained in the California Administrative Code, Education Code, and Motor Vehicle Code. The vehicle code identifies vehicles that are exempted from the identification and equipment regulations of school buses. Section 545 of the vehicle code reads as follows:

> 545. Schoolbus. A "schoolbus" is any motor vehicle while being used for the transportation of any school pupil at or below the 12th-grade level to and from a public or private school or to and from public or private school activities, except the following:
>
> (a) A passenger vehicle designed for and when actually carrying not more than eight persons, including the driver.
>
> (b) A 9-passenger or 10-passenger station wagon when used for the transportation of not more than eight pupils and the driver, other than the regular transportation of pupils to and from a public or private school or the transportation of mentally retarded or physically handicapped pupils.

> (c) A motor vehicle of any type carrying only members of the household of the owner thereof.
>
> (d) A motor vehicle operated by a common carrier, or by and under the exclusive jurisdiction of a publicly owned transit system, on scheduled runs but not used exclusively for the transportation of school pupils.
>
> (e) A motor vehicle operated by a common carrier, or by and under the exclusive jurisdiction of a publicly owned transit system, or by a passenger charter-party carrier and used under a contractual agreement to transport pupils to and from school activities but not used regularly to transport pupils to and from a public or private school.[4]

These regulations recognize two situations in which pupils may be transported between home and school in non school bus vehicles. Paragraph (d) provides for the operation of regularly equipped transit vehicles for home to school transportation on the condition that such transportation is provided in conjunction with regularly scheduled service. Special equipment is not required, and no minimum size requirement is observed.

---

[4] California Department of Motor Vehicles, Code Section 545, "Schoolbus", (Sacramento: California State Senate, amended January 1, 1975), p. 31.

Paragraph (a) excepts eight passenger vehicles from the school bus regulations, providing that not more than eight passengers are carried.

Paragraph (b) prohibits the use of nine and ten passenger vehicles for regular home to school transportation. Larger vehicles, up to sixteen passengers, although not explicitly covered by Section 545 are included under the designation of Class II school buses when regularly used for home to school transportation.

Marin County Transit District Operations

Marin County has a wide assortment of transportation services, ranging from a public transit system with general coverage of the urbanized eastern county, to categorical systems providing specialized transportation on a nonprofit basis. Each of these services contributes to the mobility of the county's population. However, each does not have equal capability of providing transportation for the school population. A three point checklist was devised to determine which operations have major potential for school transportation. The checklist included the following items:

Common Carrier or Public Transit Status: Federal and state codes require that non school bus vehicles used in home to school transportation must be classified in either of these categories.

Existing Service Network: Federal and state codes also require that home to school transportation can only be provided by a common carrier or public transit as part of scheduled service. On a practical basis, the service network must include coverage of schools.

Equipment Availability: Only those operators with equipment and drivers available for expanded service are eligible.

Satisfaction of all three checklist criteria is required to determine major potential for home to school transportation. Key transportation services in Marin County were researched and ranked by the checklist criteria. The ranking and characteristics of each service are presented here.

Operator	Common Carrier/ Public Transit	Existing Route Structure	Equipment Availability
Golden Gate Bridge, Highway, and Transportation District	X	X	X
Marin City Transit	X	X	
Whistle Stop Wheels		X	X
Traveler's Transit	X	X	
Airport Limousine Service	X	X	
Synanon			X
Guide Dogs for the Blind			

Golden Gate Bridge, Highway, and Transportation District is the only transportation operation in Marin County with major potential for providing home to school transportation.

Golden Gate Bridge, Highway, and Transportation District is the local public transit operator in Marin County and maintains a network of routes that places transit service within reach of 45 percent of Marin households. Good service is available to schools located near major arterial roads in the eastern portion of the county. Thirty-four buses operate regularly scheduled local service and another fourteen provide special service for high schools on school days. In addition, GGBHTD has equipment resources to increase the level of service if ridership and subsidies are available.

Marin City Transit is a private common carrier providing regularly scheduled transportation to Tamalpais Union High School District students living in Marin City. Marin City Transit currently functions as a home to school transportation operation, except for minor charter bus service. Routes are located to provide optimum service to Tamalpais and Redwood High Schools and no public passengers are accepted. If Marin City Transit were to expand home to school transportation strictly within the guidelines of section 545 of the state motor vehicle code, service to the general public would have to be included on existing routes. Vehicles operated by Marin City Transit are forty-seven passenger transit coaches.

Whistle Stop Wheels is the name given to a group of transportation services operated on a nonprofit basis by the Marin Senior Coordinating Council and the Volunteer Bureau of Marin. Major functions are to provide shopping and recreational transportation to Marin County senior citizens and medical transportation to persons without alternative means of travel.

Whistle Stop Wheels is not a common carrier and does not provide scheduled transportation services to the general public. Eleven vehicles are operated but none are equipped as a school bus. The operation could furnish transportation for school activities. Radio dispatching permits efficient scheduling of equipment. However, regular home to school transportation is not possible under the provision of section 545 of the motor vehicle code.

Traveler's Transit is a public-transportation service operating between San Rafael and Richmond. Twelve round trips are scheduled on weekdays. Traveler's Transit is eager to expand the service it provides to the public. However, the potential for home to school transportation is limited by the type of equipment and route location. Buses are maxi vans and are not equipped as school buses, although they could qualify for school service as transit vehicles. However, the route coverage is limited in the San Rafael area and would therefore not provide service to a large number of schools. This fact limits the potential of Traveler's Transit for home to school transportation.

The Airport Limousine Service furnishes public transportation to San Francisco Airport from Greenbrae. Eight round trips are scheduled daily. A variety of vehicles are operated depending on demand, including a station wagon, three twelve passenger vans, and a twenty-four passenger school bus. The school bus could be used for school transportation if equipment standards were met. However, the remaining vehicles would qualify for school service only if they were to furnish scheduled service on an established route. Although these conditions are met, the existing route structure with point to point destinations does not provide good coverage of schools or the school population. Like Traveler's Transit, Airport Limousine Service is of limited value for regular home to school transportation as presently organized.

Synanon, Inc., operates several buses for its own use at the Synanon headquarters in Marshall. In addition, service is contracted to the National Park Service to provide transportation for Point Reyes National Park summer visitors between park headquarters and the Point Reyes seashore. Vehicles for this service, two sixteen passenger buses, are potentially available for school transportation needs during the school year. However, the same conditions apply to these buses as to other transit vehicles. Unless school transportation is furnished in conjunction with a regularly scheduled common carrier service, vehicles must be equipped as school buses. Neither of these conditions pertains at the present time.

Guide Dogs for the Blind uses two sixteen passenger buses for transportaing blind students to San Rafael and San Francisco. The buses are modified to accommodate eight students with their dogs. Guide Dogs for the Blind uses this equipment on an irregular schedule and is not currently in a position to furnish transportation beyond its own needs.

Golden Gate Bridge, Highway, and Transportation District

The Golden Gate Bridge District was reconstituted in 1971 as the Golden Gate Bridge, Highway, and Transportation District by an action of the state legislature to give it more latitude in the area of transportation than the original charter allowed. The objective of the legislative action was to coordinate the operations and planning of the three transportation modes (auto, bus, and ferry) providing access between San Francisco and the northern peninsula. The legislation authorized the establishment of a public mass transportation system to provide an alternative to the automobile as a means of travel in the Golden Gate transportation corridor. The GGBHTD system was developed to provide transbay service to San Francisco from Marin and Sonoma counties.

The GGBHTD furnishes transit service to Marin County under a special agreement that gives the county control over the level of service provided on local GGBHTD routes. The agreement establishes that bus routes beginning and ending in Marin County are under the authority of the Marin County Transit District (MCTD). The MCTD advises GGBHTD on route locations, schedules, and hours of operation and retains the right to make changes in the service on a quarterly basis. In return, MCTD subsidizes the cost of operating local routes. The difference between local fare box receipts and the cost of local operation is paid to GGBHTD on a quarterly basis.

Local routes include: five routes providing regularly scheduled daily service (1, 5, 21, 23, 27) and five routes primarily serving the Tamalpais Union High School District and operating school days only (41, 43, 45, 47, 49). In addition to these routes, three transbay routes to San Francisco (10, 20, 50) provide substantial service for local patrons, although they are not officially designated as local routes.

The local route network provides coverage to the eastern portion of Marin County. The western portion of the county is served only by school routes offering limited school day service. Additional routes are planned in the future to provide coverage in the western portion of the county and to increase coverage in the eastern portion.

Local route coverage is shown in Figures 1, 2, and 3.

Local Marin County transit is primarily a weekday operation. Only one route -- Route 23 -- operates seven days a week. Hours of operation vary from a minimum service day of 9:00 a.m. to 4:00 p.m. on routes 21 and 27 to a maximum service day of 6:00 a.m. to 2:00 a.m. on Route 23. Buses operate at thirty to sixty minute headways, giving a frequency of service of one to two buses per hour.

Schedules for school routes 41, 43, 45, 47, and 49 are based on school starting and dismissal times and direction of travel. Service is concentrated around the 7:00 to 8:00 a.m. period and the 2:00 to 4:00 p.m. period. Service is more frequent in the school bound direction of travel in the p.m. period. No service is available during midday periods on school routes.

FIGURE 1

MARIN LOCAL TRANSIT SERVICE -- NOVATO AREA

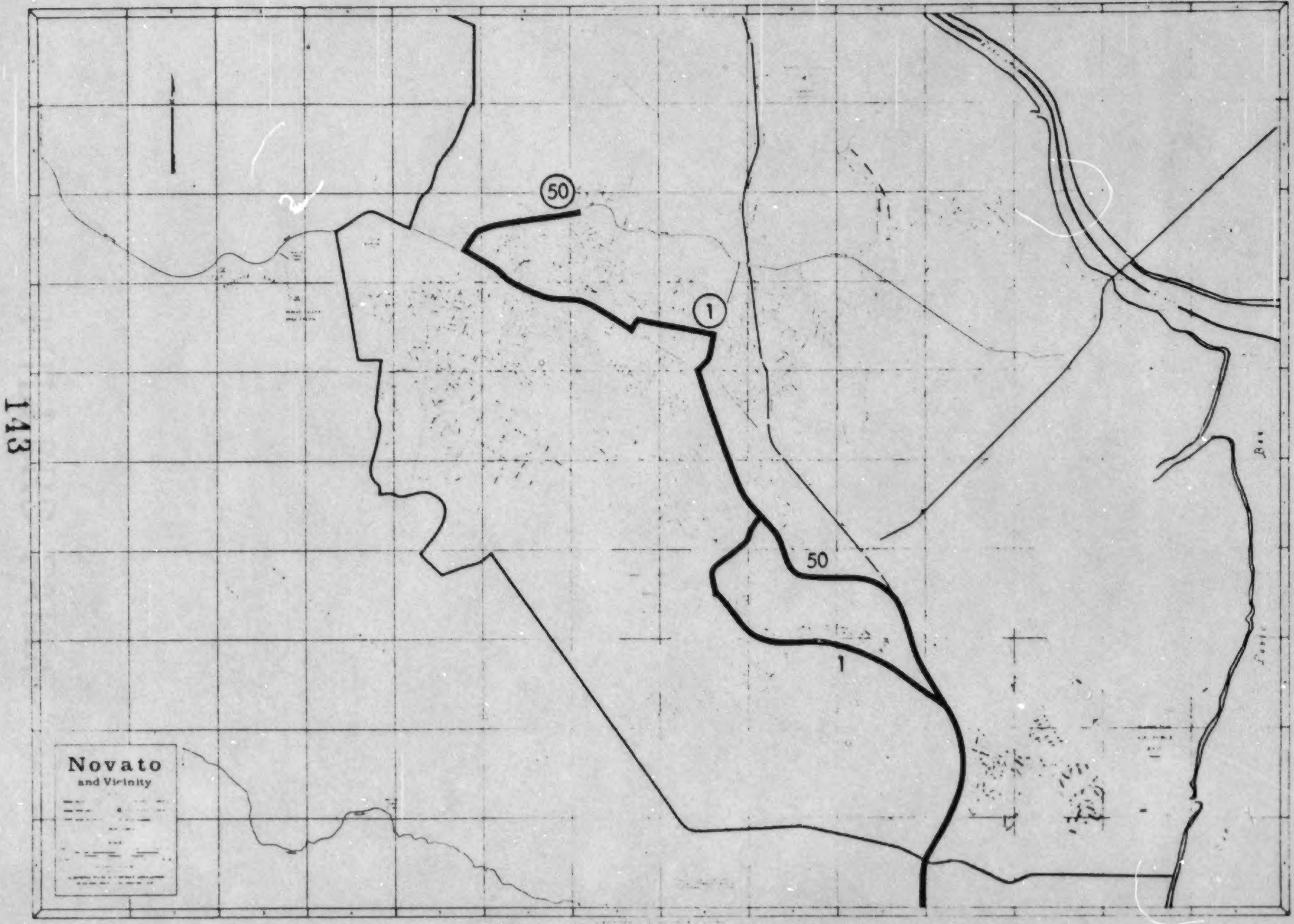

50
1
50
1
Novato
and Vicinity

FIGURE 2

MARIN LOCAL TRANSIT SERVICE -- SAN RAFAEL AREA

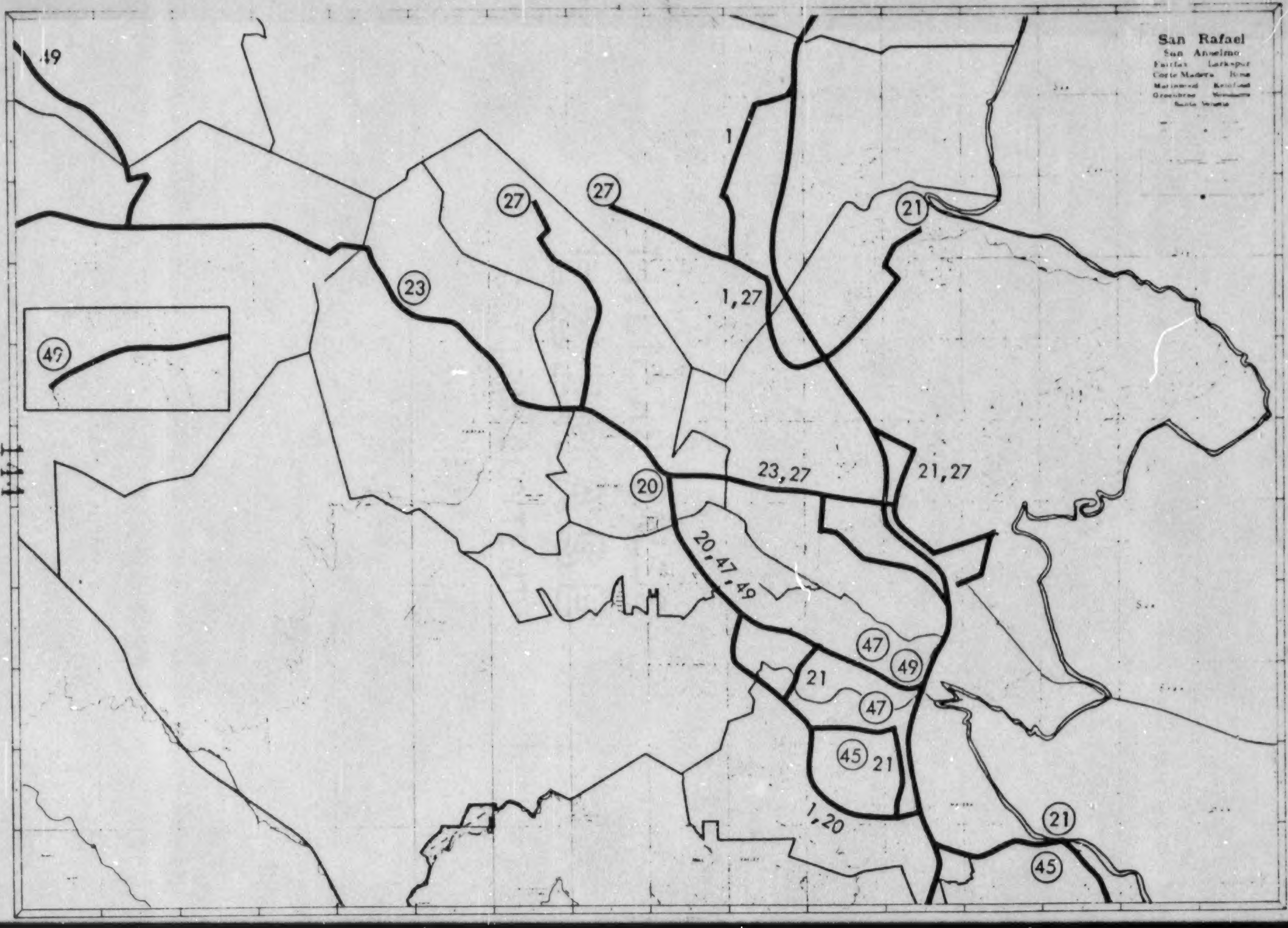
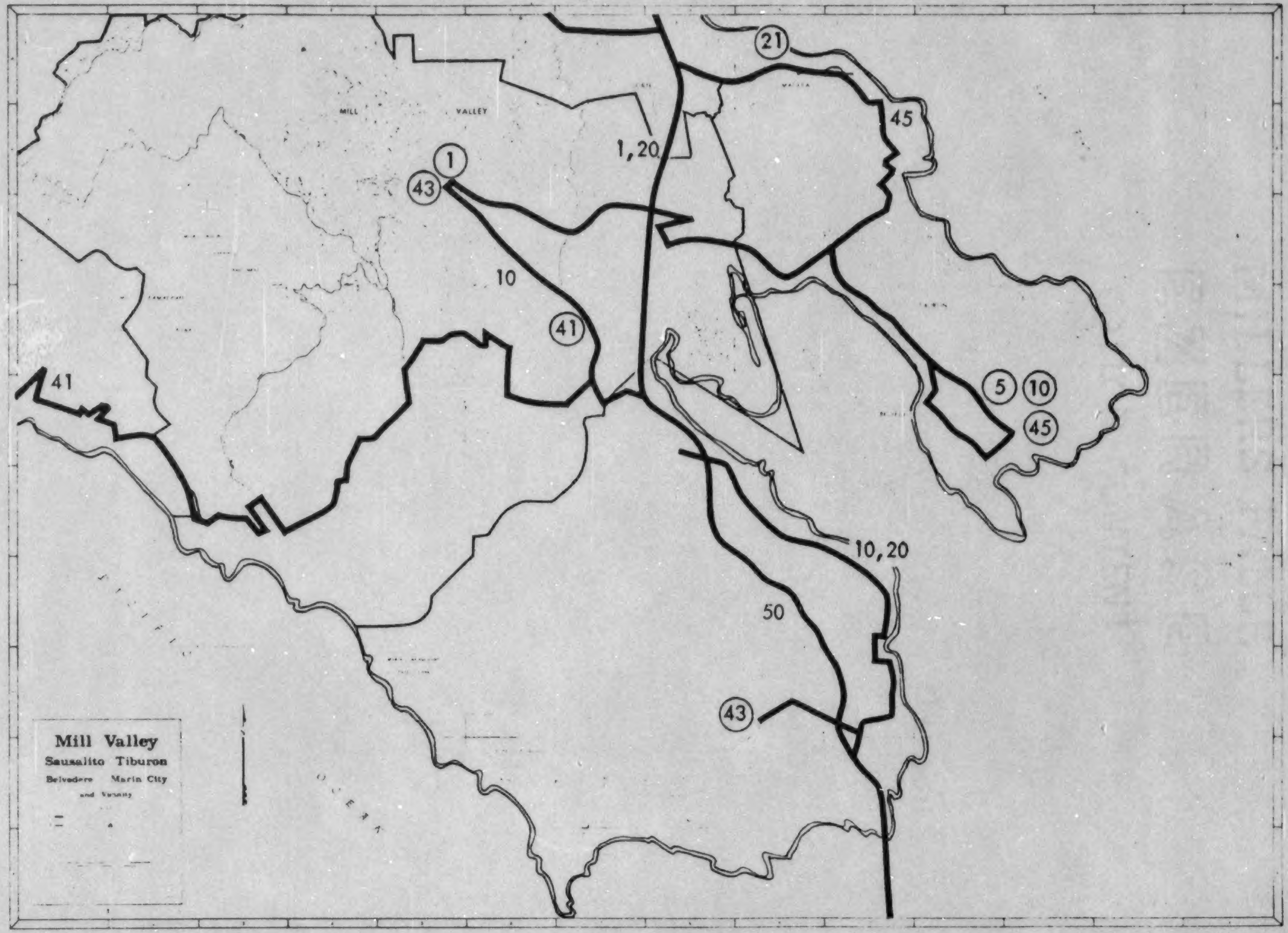

San Rafael
San Anselmo
Fairfax
Larkspur
Corte Madera
Ross
Marinwood
Kentfield
Greenbrae
Santa Venetia
49
1
27
27
21
23
1,27
49
20
23,27
21,27
20,47,49
47
49
21
47
45
21
1,20
21
45

FIGURE 3

MARIN LOCAL TRANSIT SERVICE -- MILL VALLEY AREA


21
45
MILL
VALLEY
1,20
1
43
10
41
5
10
45
41
10,20
50
43
Mill Valley
Sausalito Tiburon
Belvedere Marin City
and Vicinity

Hours of operation and headways between buses are shown for regularly scheduled local routes in Table 28.

Daily patronage totals from Marin local transit service are shown in Table 29. These figures include local transit patrons and exclude transbay patrons using local routes.

Variation in patronage between most and least patronized routes is attributable to operating schedules and route location. Routes with the least patronage, routes 21 and 27, have comparatively long headways (sixty minutes) and operate in the midday period only, from 9:00 a. m. to 4:00 p. m. Both routes provide considerable coverage of neighborhood areas away from major thoroughfares. On major thoroughfares, these routes compete with routes that have more frequent service.

All local routes provide some coverage of major thoroughfares where a significant portion of local trips are made. Route 1, the most patronized local route, captures a high portion of local trips due to the service it provides in the Highway 101 corridor, including major thoroughfares in Mill Valley, Novato, and the Ross Valley.

TABLE 28

SCHEDULE CHARACTERISTICS
Golden Gate Bridge, Highway, and
Transportation District Marin Local Service

ROUTE	HOURS OF OPERATION	WEEKDAY FREQUENCY (Headway)
1	7:00 AM - 7:00 PM	30 minutes
5/10	7:00 AM - 6:00 PM	30 minutes
	6:00 PM - 12:00 PM	60 minutes
20	6:00 AM - 6:00 PM	30 minutes
	6:00 PM - 2:00 AM	60 minutes
21	9:00 AM - 4:00 PM	60 minutes
23	7:00 AM - 2:00 AM	30 minutes
27	9:00 AM - 4:00 PM	60 minutes
50	5:00 AM - 11:00 PM	60 minutes

TABLE 29

MARIN COUNTY LOCAL TRANSIT PATRONAGE BY TRAVEL PERIOD

May 1975

ROUTE	AM PEAK PERIOD 7:00-9:00 AM	MIDDAY 9:00 AM-4:00 PM	PM PEAK PERIOD 4:00-6:00 PM	DAILY TOTAL*
1	724	1277	715	2745
5/10	225	646	125	1081
20	244	440	366	1178
21	68	266	51	385
23	342	832	348	1688
27	17	211	78	406
50	221	281	249	872
TOTAL	1841	3953	1932	8355

*Includes evening service on routes 10, 20, 23, and 50.

Data on user characteristics was obtained from a survey of GGBHTD patrons in May 1973, the most recent month for which compiled survey information was available. No significant changes in service area or schedules have been made in the interim period that would substantially alter these characteristics. However, changes in gasoline price and availability and inflation may have encouraged Marin residents to use transit for local trips. Hence, the data must be regarded as only an approximate profile of the current transit user.

User characteristics are summarized in Table 30. The following findings were drawn from a report prepared by the MCTD.[5]

1. Trip Purpose: The largest group of riders is students, as shown by the percentage distribution of trips by purpose. The predominant destination of these trips is the College of Marin in Kentfield. Other student trips are generated by other colleges and by high schools.

---

[5] Mid-Project Report on the Interim Capital Improvement Program, San Rafael, California, August 1973.

TABLE 30

MARIN COUNTY LOCAL TRANSIT RIDERSHIP CHARACTERISTICS

(Survey Conducted May 1973)

Trip Purpose	
School	40%
Work	32%
Shopping	9%
Other/No Response	19%
Auto Availability as a Substitute for Transit Trip	
Auto was Available	34%
Auto was not Available	66%
Access to Bus Stop	
Mode	
Walk	69%
Car	16%
Other Bus	11%
Other/No Response	4%
Egress from Bus Stop	
Mode	
Walk	82%
Car	4%
Other Bus	10%
Other/No Response	4%

Source: Mid-Project Report, Marin County Transit District Interim Capital Improvement Program. August 1973, San Rafael, California.

2. Auto Availability: One-third of the users had cars available which they chose to leave at home. This situation is explained by the difficult parking situation at the College of Marin where many of the local transit trips are made.

3. Access Modes: Walking was the predominant mode for getting to and from bus stops. Relatively few people used a car to get to a bus stop (16 percent) and fewer used a car to get to their destination from the bus (4 percent). However 10 percent of riders used a bus as the access mode, indicating that transfers are used between routes.

The average operating cost of GGBHTD buses for the six month period between July and December 1974 was $1.36 per mile. This is comprised of the following cost components:

$ .20 - Maintenance (includes: maintenance, administrative personnel; depreciation on buildings; maintenance and repair of buildings.)
.79 - Wages (includes fringe benefits)
.08 - Fuel and Lubrication
.01 - Tires and Tubes
.04 - Insurance
.22 - Planning and Administration
.04 - Depreciation of coaches and fare boxes
$1.36

These costs are computed for the overall GGBHTD operation, based on information supplied in the 1974 budget. Local transit service may have a slightly higher operating cost than the average because of the number of stops made and the higher depreciation of vehicles. Transbay service may be slightly lower in average cost because of fewer stops.

Golden Gate Bridge, Highway, and Transportation District drivers' wages are negotiated under union contract. Hourly wages currently range from $6. 57 to $6. 77, excluding fringe benefits. Fringe benefits increase base wages by 25 percent. Which wage rate a driver receives is based on whether he is temporary or permanent. The wage contract contains escalator clauses designed to adjust GGBHTD wage rates to changes in the consumer price index and to wage rates of other transit operators in the bay area. Wage rates increased $. 06 an hour in July 1975.

The GGBHTD wage rate is based on a minimum eight hour day. Drivers working less than an eight hour day are paid for the full day. Drivers working more than an eight hour day are paid an overtime wage rate.

The cost of local transit service in Marin County is calculated from a formula that has two basic factors: average distance traveled per passenger, and operating cost per mile.

The average distance traveled by each passenger is derived from periodic ridership surveys (such as the on board ridership survey in May 1973) that obtain on and off locations for each passenger. Operating costs per mile are divided into peak and off peak operating costs. Route miles traveled in the peak travel times between 7:00 a.m. and 9:00 a.m. and between 4:00 p.m. and 6:00 p.m. are charged at the rate of $1.63 per mile. Route miles traveled during the midday, early morning and late evening hours are charged at the rate of $.65 per mile. The cost of local transit service is determined by multiplying the number of riders by the average distance traveled to produce passenger miles. The proportion of local passenger miles to total passenger miles is then multiplied by total mileage and by average cost per mile to derive total cost. The cost of local transit service in the 1974-75 fiscal year under the GGBHTD formula was $1,700,000. This figure includes local passengers on local routes and local passengers on transbay routes, distributed as follows:

Local passengers on local routes	$1,000,000
Local passengers on transbay routes	700,000
	$1,700,000

A preliminary analysis of local GGBHTD routes was made to determine the potential of public transit to serve home to school travel needs now provided by school districts. A two part approach was used in this analysis. Bus schedules and school schedules were compared to establish the frequency of bus service at school locations. Patronage figures were examined to determine which buses on each route operate at capacity or near capacity. Neither of these steps was intended to be an exhaustive analysis of GGBHTD service. Information was obtained to provide a preliminary framework for developing alternatives for school transportation.

The frequency of bus service, schools selected for analysis, bus routes, schedule analysis, findings, and bus capacity are as follows:

Schools were selected within walking distance of GGBHTD routes. Walking distances were based on criteria established by the state school transportation reimbursement policy for the maximum distance a student should be expected to walk to school without transportation. Acceptable distances between public transit routes and schools should not exceed these distances and should preferably be somewhat less because of the possibility that students might have to walk at both ends of the bus trip. These distances were established as one quarter mile for elementary school students and junior high school students, and one half mile for high school students.

Emphasis was placed on school districts where a sufficiently large number of schools could be served by public transit to make possible the development of a home to school transportation program based on public transit. School districts not having a majority of schools within walking distance of public transit routes were not analyzed at this stage. The following districts were included: Fairfax, Kentfield, Larkspur, Reed Union, San Anselmo, San Rafael, and Sausalito.

All local Marin County routes were analyzed, including the special school day only routes serving the Tamalpais Union High

School District. Commute routes were not included in this first pass analysis because of the limited capacity and lack of available service in the afternoon.

No provision was made for the geographic coverage of routes adjacent to each school. In each case, some proportion of pupils will not be conveniently accessible to transit routes at the home end of the home to school trip. However this fact was not accepted as a constraint for purposes of analysis at this stage.

Principal starting and dismissal times for schools were identified, excluding midday split sessions and special day schedules. Bus schedules were examined to determine the number of bus arrivals in either direction of travel at school starting and dismissal times. Buses arriving within a thirty minute period before starting times and within a thirty minute period after dismissal times were considered to provide an acceptable level of service for home to school travel. A summary of school starting and dismissal times and scheduled bus arrivals is contained in Table 31.

Scheduled public transit service is available to approximately two-thirds of the schools included in the analysis. Nearly 25 percent

TABLE 31

GOLDEN GATE BRIDGE, HIGHWAY, AND TRANSPORTATION DISTRICT SERVICE TO SELECTED SCHOOLS

SCHOOL DISTRICT	SCHOOL	PUBLIC TRANSIT AVAILABLE (Route Number)	SCHOOL STARTING, DISMISSAL TIMES	BUS ARRIVAL TIMES	
				NORTHBOUND EASTBOUND	SOUTHBOUND WESTBOUND
Fairfax	White Hill	23, 49	9:00	-	8:54 (23)
			3:15	-	3:22 (49)
	Manor	23, 49	8:30, 9:30	8:00, 9:00 (23)	8:22, 9:22 (23)
			1:50, 2:30	-	-
Kentfield	Adeline Kent	20, 1, 49, 47	8:30	8:05 (20, 49) 7:59 (1)	8:21 (20, 1) 8:24 (47)
			2:45, 3:08	3:05, 3:35 (20) 3:33 (47) 2:49, 3:29 (1)	2:51, 3:21 (20, 1) 3:21 (47)
	Anthony Bacich	1, 49, 47	8:30	8:01 (1) 8:08 (49)	8:19 (1) 8:22 (47)
			2:45	2:51 (1)	2:49, 3:19 (1)
	Greenbrae	21, 1, 49	8:30	8:10 (49)	-
			2:45	2:54 (1)	2:58 (21) 3:16 (1)
Larkspur	Henry Hall	1, 20, 21	8:45	8:20 (1, 20)	8:30 (1, 20)
			3:00	3:20 (1, 20)	3:30 (1, 20) 3:18 (21)
	Larkspur-Corte Madera	1, 20	8:45	8:18 (1, 20)	8:32 (1, 20)
			3:00	3:18 (1, 20)	3:32 (1, 20)
	Neil Cummins	1, 20	8:40	8:18 (1, 20)	8:32 (1, 20)
			3:00	3:18 (1, 20)	3:32 (1, 20)
	San Clemente	21	8:45	-	8:26 (21)
			3:00	-	-
Reed Union	Reedland Woods	5, 10, 45	8:45	8:23 (5)	8:30, 8:33 (45) 8:35 (10)
			3:15	3:28 (45)	3:38 (5)
	Del Mar	5, 10, 45	8:30	8:25 (5)	8:26 (45)
			3:00	-	-
	Belvedere	5, 10, 45	:45	8:30 (5)	8:30 (10) 8:23 (45)
			2:00	-	-
San Anselmo	Sleepy Hollow	27	8:55	-	8:26 (27)
			2:00, 3:10	3:44 (27)	-
	Hidden Valley	27	8:45	-	8:30 (27)
			3:13	3:49 (27)	-
	Brookside	27	8:55	-	8:25 (27)
			2:00, 3:10	-	-
	Red Hill	23, 27, 49	8:40	8:10 (23)	8:22 (27) 8:10 (23)
			3:10	3:40 (23)	-
San Rafael	Gallinas	21	8:30	-	-
			2:00, 2:30	-	2:23 (21)
	Santa Venetia	21	8:30	-	-
			2:50	-	3:23 (21)
	West End	23, 27	8:30	8:17 (23)	8:05 (23) 8:20 (27)
			2:00, 2:30	2:17, 2:47 (23) 2:02, 3:02 (27)	2:05, 2:35 (23) 2:17 (27)
	Coleman	21, 27	8:30	-	-
			2:00, 2:30	2:39 (21) 2:15 (27)	2:35 (21) 2:05 (27)
	Short	21	8:34	-	-
			2:00	2:26 (21)	-
	James B. Davidson	21	9:00	-	-
			3:20	3:24 (21)	3:50 (21)
	Laurel Dell	21	8:30	-	-
			2:00, 2:30	2:26 (21)	2:52 (21)
	San Rafael High	21, 27	8:10	-	-
			2:20	2:40 (27)	2:40 (27)
Sausalito	Martin Luther King	5, 10, 20	8:30, 9:10	8:10 (5, 10) 8:40 (10) 8:03, 9:03 (20)	8:40 (10) 8:17, 8:48 (20)
			2:40, 3:20	3:08, 3:38 (10) 3:50 (5)	3:05, 3:40 (10)
	Bayside	5, 10, 20	8:30, 9:30	8:10 (5, 10) 9:10 (10) 8:03, 9:03 (20)	9:10 (10) 8:17, 9:17 (20)
			1:30, 2:30	1:38, 2:38 (10) 2:00, 3:00 (20)	1:40, 2:40 (20)

of these schools have full transit service and 40 percent have partial transit service. Full service is considered to exist when buses are scheduled to arrive in each direction for all starting and dismissal times in the school schedules. Partial service is defined as bus service from only one direction, or at only one time during the day (such as morning or afternoon).

Given the results of this analysis, public transit appears to have the highest potential for Kentfield, Larkspur, and Sausalito School Districts. Each of these school districts has a high proportion of schools served by existing transit routes and schedules. Other school districts have high transit service in one school location and low transit service at another location. This indicates that existing transit and school schedules are not sufficiently compatible to enable public transit to conveniently transport pupils. However, the potential exists for restructuring schedules to provide greater compatibility and more convenient access to transit.

Limited seat availability is a potential constraint in accommodating students on the existing public transit system.

Normally seat availability is determined by measuring the volume of riders on the bus at peak load locations. However, data on peak loads during periods of home to school travel were not available. An alternate method was therefore devised to accomplish this task.

In the absence of peak load data, trip patronage was used as an indication of seat availability. Bus trips with local patronage totals exceeding the capacity of the bus were identified for each route. GGBHTD buses have a capacity of forty-five passengers. Trips with more than forty-five local passengers would experience a combination of two situations: patronage during the trip would remain relatively constant if passengers boarded and exited regularly; or the bus would be filled to capacity. Given the latter of these two situations, trip volumes exceeding fifty passengers were assumed to be an indicator of low seat availability.

Bus trips made during periods of high home to school travel activity which transport more than fifty local passengers are listed in Table 32. Times given are the arrival time of each bus trip at its final destination. For southbound runs on transbay routes 10, 20, and 50, these times are San Francisco arrival times. The list

TABLE 32

PEAK PATRONAGE
TRANSIT TRIPS

ROUTE	DIRECTION OF TRAVEL	LOCAL TRIPS WITH MORE THAN 50 LOCAL PATRONS	
		AM Arrivals*	PM Arrivals*
1	Southbound	8:20 8:40 9:10 9:40	1:40 2:10 3:23 4:20 4:50
	Northbound	8:25 8:54	1:25 1:57 2:24 2:54 3:24 4:05 4:58
5	Northbound	8:37	
10	Northbound		3:52
20	---	---	---
21	Southbound		2:32 3:33
23	Southbound	8:09 8:39 9:09	3:10
	Northbound	8:24 8:54	2:24 2:55 4:24
27	Northbound	8:37	3:37
50	Southbound	9:02 9:52	4:55

*Arrival time at route terminus

of runs for transbay routes is conservative because transbay passengers are not included.

The time listings in Table 32 indicate a considerable number of bus trips with high patronage, particularly during periods of school starting and dismissal times. Closer scrutiny of peak load characteristics of these trips is necessary to determine if sufficient capacity is available to transport school children.

9. TRANSIT NEEDS ANALYSIS

This section documents the work conducted by JHK and Associates consultant firm. The purpose was to perform an analysis of transit needs in Marin County, exclusive of the transportation needs of school districts. The analysis was directed at identifying transit needs of both the general population and specific population sectors.

General Transit Needs

Two approaches were explored to determine the most effective way to obtain data on transit needs.

One approach was to use a travel demand model developed for the Marin County Balanced Transportation Program (BALTRAN) study to determine the demand for transit of the general population. (See Appendix VII.)

The second approach was to map areas of transit need in the county and use a graphic overlay process to determine where growth in transit demand could be expected to occur. In conjunction with this approach, responses from a February 1975 transit ridership survey would be used to demonstrate the travel needs of the existing transit user.

The BALTRAN model is a general travel demand model not specifically designed to generate transit demand figures. Although the model is useful on a regional scale of analysis, it is not sensitive to travel demand factors at the level of detail of specific links in the highway network. In addition, considerable data processing is required to generate noticeable results.

Use of overlay mapping was found to be the more desirable of the two alternatives. Data on transit activity generators was readily available from the Marin County Transit District and the availability of on board survey data enabled user needs to be known without the development of a costly survey. The results of the overlay mapping closely parallels work conducted by the Marin County Transit District in preparation of the Local Transit Development Program in 1974.

Mapping of Transit Need Indicators

High transit usage is typically associated with high population density, high employment density, a concentration of low income population, and institutional activity generators such as schools, hospitals, and government facilities. Where these factors occur individually or together in major activity centers, a potential need for transit can be assumed to exist.

Densities of dwelling units and employment for 1972 were obtained from traffic zone data gathered for the BALTRAN study. This data was graphically represented on a detailed street map of the county, using the street patterns to ensure that areas of different density were accurately defined. Overlays showing low income areas, hospitals, colleges, and junior and senior high schools were prepared. An additional overlay of projected 1985 population density was made to show areas in which transit need could be expected to increase in the future.

Rural portions of Marin County were found to have a generally low density of dwelling units and employment and these are not included on the map. A value of three dwelling units per acre was used as the threshhold level of transit potential, and the result was that areas of concentration are confined to the more densely settled eastern portion of Marin County.

The existing transit system and proposed future additions to the route network were overlayed on mapped data to show areas where transit currently exists and is expected to exist in the future. Coverage of the transit system was defined as a distance of one quarter mile on either side of routes, an accepted standard of walking distance. Areas beyond the quarter mile distance were considered to have a potential need for transit and were identified as such.

Summary maps of the overlay analysis are shown in Figures 4, 5, and 6. (Because these maps are reproduced in small scale, density gradients for population or employment are not shown).

Findings

Only a small portion of eastern Marin County with a density of more than three dwelling units per acre is currently not served by transit. For the most part, areas without transit are neighborhoods close to transit routes but beyond the minimum one quarter mile distance.

Areas with a dwelling unit density of three or more units per acre that are not accessible to transit, are indicated in Table 33.

FIGURE

TRANSIT NEED INDICATORS

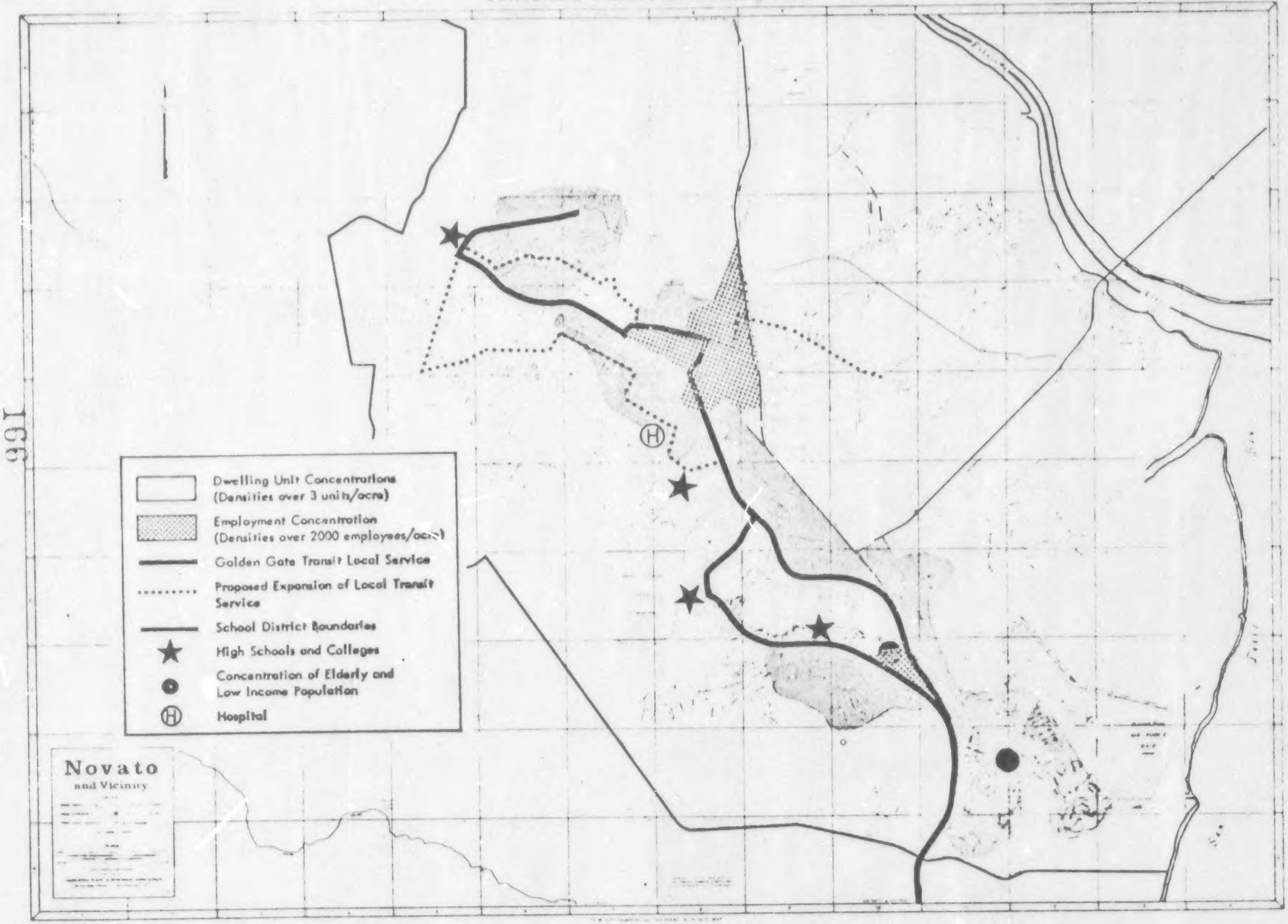

Dwelling Unit Concentrations (Densities over 3 units/acre)
Employment Concentration (Densities over 2000 employees/acre)
Golden Gate Transit Local Service
Proposed Expansion of Local Transit Service
School District Boundaries
High Schools and Colleges
Concentration of Elderly and Low Income Population
Hospital
Novato
and Vicinity

FIGURE 5

TRANSIT NEED INDICATORS

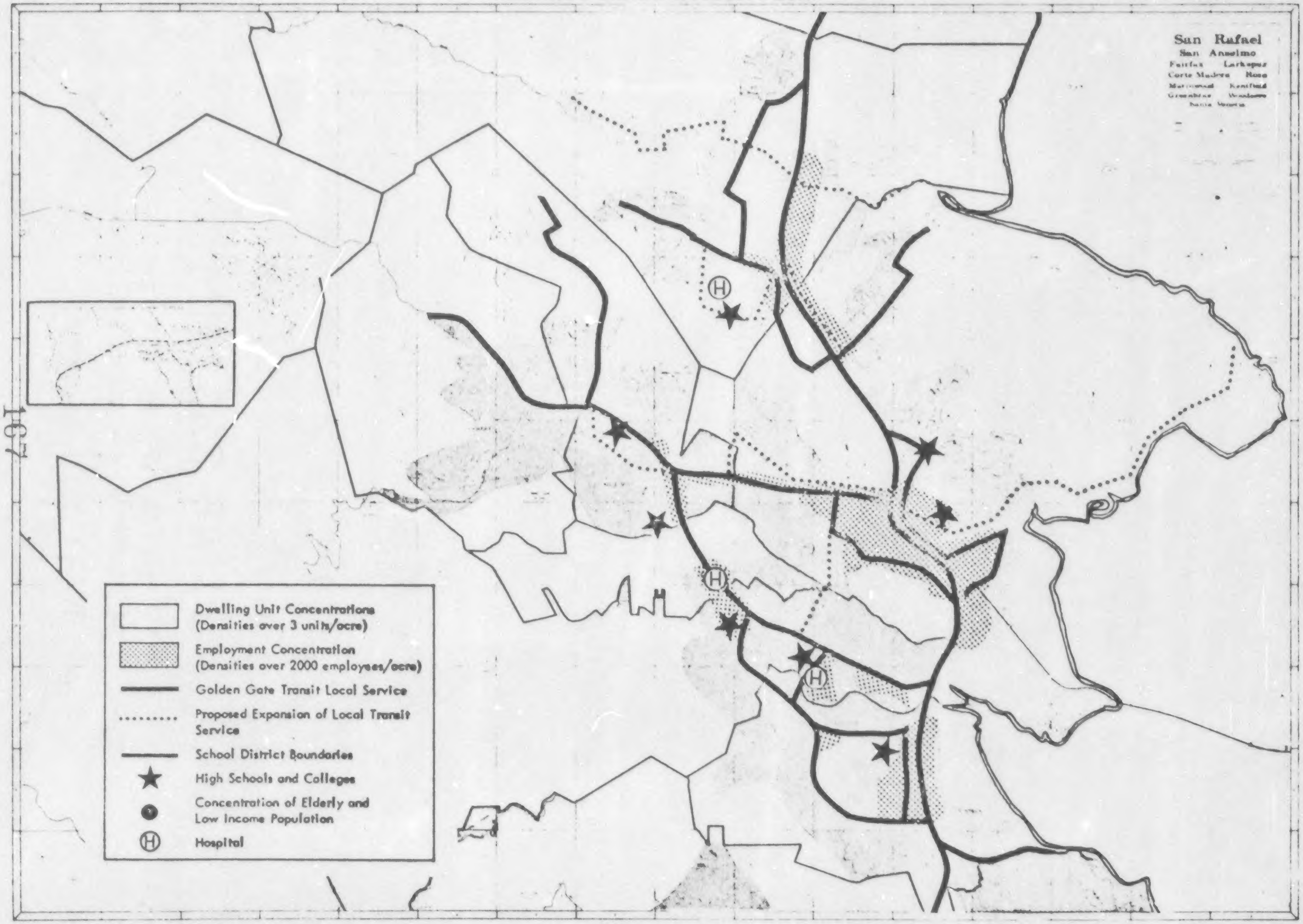

San Rafael
San Anselmo
Fairfax
Larkspur
Corte Madera
Ross
Kentfield
▭ Dwelling Unit Concentrations (Densities over 3 units/acre)
▨ Employment Concentration (Densities over 2000 employees/acre)
Golden Gate Transit Local Service
Proposed Expansion of Local Transit Service
School District Boundaries
★ High Schools and Colleges
● Concentration of Elderly and Low Income Population
Ⓗ Hospital

FIGURE 6

TRANSIT NEED INDICATORS

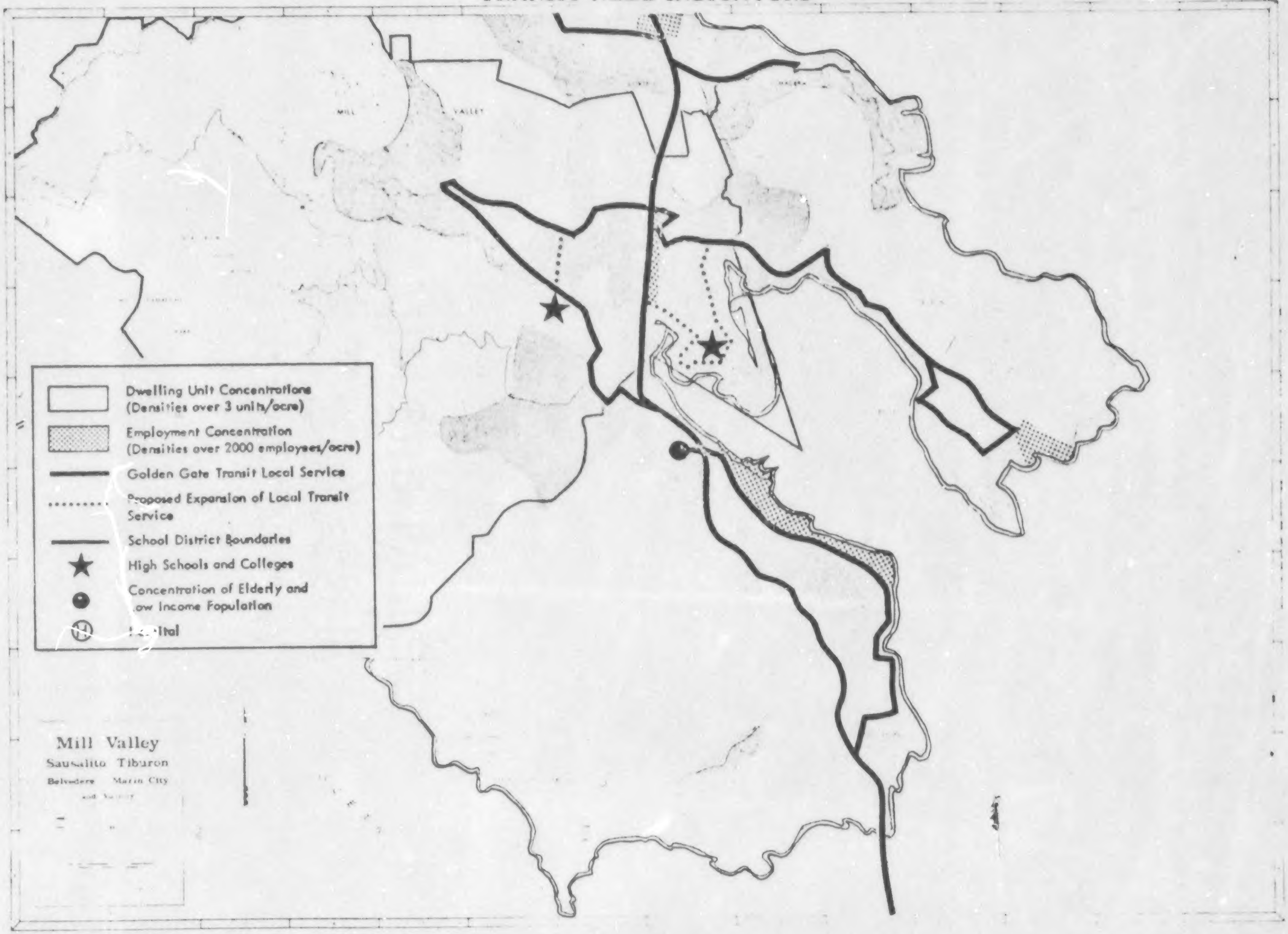

Dwelling Unit Concentrations (Densities over 3 units/acre)
Employment Concentration (Densities over 2000 employees/acre)
Golden Gate Transit Local Service
Proposed Expansion of Local Transit Service
School District Boundaries
★ High Schools and Colleges
● Concentration of Elderly and Low Income Population
Hospital
Mill Valley
Sausalito Tiburon
Belvedere Marin City
and Vicinity
MILL VALLEY

TABLE 33

AREAS WITHOUT EXISTING TRANSIT SERVICE

AREA	DWELLING UNIT DENSITY (Units per Acre)
Novato	
. Bel Marin Keys Blvd.	3
San Rafael	
. 3rd Street - Pt. San Pedro Road area, east of downtown San Rafael	3-6
. West San Rafael adjacent to 5th Avenue	3-6
San Anselmo	
. Area south of Sir Francis Drake Blvd.	
Fairfax	
. Area south of Sir Francis Drake Blvd.	6-12
Kentfield	
. Wolfe Grade area	3-9
Mill Valley	
. Ridge area Northwest of Mill Valley SBD	3-6
. Tam Valley - Shoreline Highway area	3-6
Tiburon	
. Paradise Way	3-6
. Strawberry	3-9

Existing centers of employment are well served by transit in Marin County. In most cases employment is concentrated at major junctions in the highway network, enabling connections to be made between two or more transit routes.

The existing transit system serves most hospitals in eastern Marin. However, two hospitals are not easily accessible by transit. These are the Novato General Hospital in Novato, and the Kaiser Foundation Hospital in San Rafael. Both hospitals are expected to be included in the route system in the future if proposed transit development plans are implemented.

With a few exceptions, educational institutions from college level down to junior high schools are within a quarter mile walking distance of transit. Exceptions are: Sinaloa Junior High School, Novato High School, and the Indian Valley Colleges campus in Novato, which are within one half mile of transit routes; Terra Linda High School in San Rafael, also within one half mile of transit; and the Golden Gate Theological Seminary in Strawberry. Terra Linda High School and the Golden Gate Theological Seminary are better served by the proposed future route system. Discussions are also under way to provide transit service to the Indian Valley Colleges

Marin County has very few concentrations of low income population. Low income areas were designated by using average income data from traffic zone analysis. These areas were shown to have a concentration of low income residents: (1) Ignacio Boulevard at the junction of Highway 101; (2) Hamilton Air Force Base residential areas; and (3) Marin City. Each of these areas is currently served by transit.

Marin County is expected to experience a growth rate in the next ten years that will add 20,000 more dwelling units to the existing housing stock. Much of this growth will be in developed areas, with the result that existing densities will increase but few new areas will be developed. Where existing developed areas are served by transit, the higher density will mean that the level of transit service may have to be increased but that no additional route coverage will be required. Additional route coverage will be required in areas where the density of development exceeds three dwelling units per acre. These areas are listed as follows:

Area	Dwelling Unit Density (Units per acre)
Novato:	
San Marin Drive area	3-6
Residential areas northwest of Atherton Avenue	3-6
Route 37, east of Novato Creek	6-9
San Rafael:	
Marinwood - St. Vincent's area	3-6
East Canal area	3-12
Peacock Gap	3

In most cases this growth has been anticipated by the Marin County Transit District and routes have been extended in proposed transit plans to account for expanded transit needs. Route extensions are shown in dotted lines in Figures 4, 5, and 6 on pages 149-151.

Expressed Needs of Transit Riders

An expression of attitudes from existing transit riders was obtained from written comments provided by the February 1975 on board ridership survey. These comments are of limited usefulness in making inferences about the needs of the total transit ridership because the sample included only those riders who volunteered to comment. However, the comments indicate which needs are most strongly felt to exist by the vocal minority of riders.

Rider comments are summarized below by type of response in the following categories: routes, schedules, transfers, cost, and equipment and facilities. The most frequently mentioned types of responses are listed first.

In the route response category, users mentioned in equal proportion the need for: more direct routing between points; extended routes to provide greater coverage; and new routes.

Scheduling received the highest number of responses from riders. In order of frequency of comment, the following types of response were received: the need for weekend service; the need for evening or late evening service; more frequent service; more convenient arrival and departure times (primarily received for routes 1 and 20, presumably from students at the College of Marin); and express service.

By far the largest number of respondents expressed a need for lower fares for students. This response rate is attributable to the high proportion of students (40 percent) using local public transit. Several comments were also made about the high cost of transit in general.

The difficulty of making good connections between bus routes received the next highest proportion of comments. Riders complained that: the amount of time buses wait at transfer locations is too short; buses miss scheduled transfers; and schedules should be adjusted to make transfers possible at all route junctions.

Riders mentioned the need for: bus shelters at various locations; improved signing on buses indicating route information on the inside of the bus and the route name on the rear of the bus; clearer route maps; and routes and schedules posted at bus stops.

Special Transit Needs

Low mobility is typically associated with the young, the elderly, and the handicapped. These groups are regarded as having a greater need for public transit because alternative modes of transportation are not available to them. In Marin County, in addition to the needs of the handicapped and senior citizens, two other needs were identified: medical transportation and student transportation.

Access to medical services is recognized as a need for both the elderly and the young.

Student transportation is regarded as a need in educational institutions without programs for providing home to school transportation. This need is particularly great in community colleges and in private or parochial schools.

Indoor Sports, Inc. of Marin County, a nonprofit group organized for the benefit of the handicapped population, estimated that 570 persons are confined to wheelchairs in Marin County. This figure was prepared from records made available by the California Department of Rehabilitation and the Veterans' Administration, and is a conservative estimate because the records do not account for the entire wheelchair population. Transportation services specifically adapted to the needs of this group are limited to a van equipped with a wheelchair lift owned by Indoor Sports, and operated by the Marin Senior Coordinating Council as part of the Whistle Stop Wheels program. Transportation to two activities per week is provided by this arrangement. No facilities are provided by GGBHTD for the physically handicapped.

Indoor Sports, Inc. is currently engaged in efforts to increase the transportation services capable of being used by persons in wheelchairs. A state class action suit has been filed on behalf of the Marin County handicapped population to require that all new transit equipment placed in service to the general public be equipped with facilities for wheelchair use.

Transportation is provided specifically for senior citizens by the Whistle Stop Wheels program of the Marin Senior Coordinating Council. Service is provided to senior citizen clubs, recreation centers, and residence centers on a contractual basis. In addition to shopping, recreational, and social service trips, Whistle Stop Wheels operates a "Meals on Wheels" program for indigent senior citizens.

The "shopper shuttle" serves six low income housing developments, each for half a day. The following residential developments are included:

Novato -- Casa Nova

Terra Linda -- Golden Hinde

Santa Venetia -- Venetia Oaks

Mill Valley -- Kruger Pines, Homestead Terrace

Kentfield -- Priory

Scheduled trips are furnished to shopping centers and recreation centers on a daily basis, and nonscheduled transportation is provided to community services and local agencies on a demand scheduled basis.

During 1974, a total of 28,850 trips were furnished to senior citizens under the Whistle Stop Wheels program.

The Volunteer Bureau of Marin operates a transportation program for medical needs in conjunction with the Whistle Stop Wheels program. Transportation is furnished to persons in medical therapy programs who are unable to provide their own transportation. The service is primarily aimed at the needs of children, but all age groups are served when schedules and vehicle resources permit. Service is provided through referrals by clinics and agencies, so that the need for transportation can be verified.

Vehicles are made available by the Marin Senior Coordinating Council. The Volunteer Bureau provides volunteer drivers and employs two dispatchers to operate a telephone switchboard and arrange transportation schedules. In addition, volunteers drive for the Volunteer Bureau using their own cars.

The Volunteer Bureau transportation program was developed as a stopgap measure to serve an unfilled need. The rapid increase in size and scope that the program has experienced is viewed by the Volunteer Bureau as a mixed blessing. The dimensions of need for medical transportation are large and the Volunteer Bureau recognizes that the need has only been partially filled. However, the program has become institutionalized to the point where the bureau is locked into a program for which it was not originally organized.

Travel for the student population of Marin County has two dimensions: the need for transportation to non school activities; and the need for transportation to educational institutions which have no provision for home to school transportation.

The first need applies to the school population of all ages. Even when school district bussing is available for students in elementary schools and high schools, transportation is provided between home and school only, and students must rely on the public transit system or on parents or friends for transportation. Parents of younger children often find themselves in the role of afternoon chauffeurs because of the lack of alternative means of travel. High school and college students without cars must also rely on public transit, family or friends for transportation.

The second, and more difficult, problem is transportation to and from school for students attending institutions without special transportation facilities. This problem is experienced largely, but not exclusively, by college students who are mainly dependent on public transportation for home to school travel. Two areas of needs were identified in this regard: Needs of students at the College of Marin and Indian Valley Colleges campuses of the Marin Community College District; and needs of students at private institutions.

The majority of students at the College of Marin must rely on GGBHTD to go to and from classes. The college has a daytime population of 6,000-7,000 students with a capacity of 1,532 parking spaces on campus. Parking costs $10 per semester and spaces are not assigned, so a student cannot be assured of finding a space. Many students share rides; however, other means of travel are limited. Hitchhiking is practiced by a considerable number of students but is discouraged by the college.

Students relying on GGBHTD buses for service to and from the College of Marin cite two basic needs regarding the level of service provided: more convenient schedules; and a lower fare for students.

Classes at the College of Marin begin at ten minutes after the hour and end on the hour. Bus arrival and departure times at five minutes after the hour would be ideal in terms of allowing walking time between the bus stop and classes, and in serving arriving and departing students equally well. However, existing bus schedules do not offer this convenience.

Arrival times of routes 1 and 20, which provide direct service to College of Marin on College Avenue, are at twenty-one minutes and fifty-one minutes after the hour in the northbound direction. This schedule permits an eleven or nineteen minute walking time before class starts and a similar period after classes finish.

The degree to which schedules can be adjusted is limited by the requirement that transfers between lines at junction locations be convenient. Shifting schedules on route 1 and 20 forward or backward could reduce the operating latitude presently allowed buses making scheduled transfers.

Prior to 1974 a discount fare of $.15 was available to students. This practice was discontinued and the fare raised to $.35 due to increased transit operating costs and the need for additional revenue. However, the MCTD recently reinstated the student discount, permitting students to ride for $.25, effective January 1, 1976.

A new campus, Indian Valley Colleges in Novato, opened in September 1975. The new facility is located several blocks west of the bus stop and has only one access road. There is a large parking area that will accommodate approximately 940 cars at the entrance of the campus. There will be a service road ringing the campus, but it will not be open to the public. At the entrance to the campus there will be a bus turnaround as well as a sheltered pickup area. Another bus turnaround has been provided for future use on the west side of the campus on the main entry road. Student access to the colleges will be along pedestrian routes.

The college district is working with the county to establish additional access to the college campus but it is not known at this time what that will be. It is also not known whether GGBHTD will run buses into the campus proper. Projections for the Indian Valley Colleges campus indicate that the existing enrollment will significantly increase with the opening of the new campus. It is anticipated that this increased enrollment will come from the increasing population in the Novato area and also from students transferring from the College of Marin who live closer to the Indian Valley Colleges.

Marin County has a considerable number of private educational institutions. These range from institutions of higher education, such as Dominican College in San Rafael, to high schools (e. g. Marin Catholic High School) and elementary schools.

Many of these establishments have partial or complete transportation programs for students attending them. For example, Marin Country Day School in Tiburon and San Domenico School in San Anselmo both operate buses for home to school transportation.

Most schools depend, in part, on public transportation to provide students with transportation to school. Marin Catholic

High School, Dominican College, and San Domenico School are all located close enough to transit routes to permit convenient transit travel. The Independent Learning School in Corte Madera relies heavily on public transit, requiring that students able to use transit to travel to and from school do so. The school is located at the southern terminus of GGBHTD Route 21 and depends on this route to provide for the transportation needs of its students.

10. CONSOLIDATION ALTERNATIVES

Consolidation of transportation operations is typically undertaken when two types of conditions apply: situations where redundant services are being provided, and situations where economics of scale could be achieved if smaller operations merged as a single larger unit. A single objective is achieved in both cases: the combined operation becomes more cost effective. These situations exist in every type of service industry, and are not limited to transportation. The education field, for example, has experienced a significant number of school system consolidations.

Consolidation is an external method of achieving a higher level of cost effectiveness. It is accomplished by merging two independent systems. Providing that the goals and operations of both systems are reasonably similar the merger can be carried out successfully.

Improvements in the management of transportation systems to increase cost effectiveness can be made. For example, cost reductions in school bus parts and equipment are available to all public agencies through a statewide purchasing agreement. Reductions in fuel prices can also be obtained by direct bulk purchasing or by agreements with other local public agencies that obtain bulk fuel deliveries.

Consolidation of school transportation programs is usually the result of a consolidation of two or more school systems into a unified district. However, two cases were investigated where consolidation was conducted independently of other school districts' operations: the Nevada County Bus Pool and the Placer County Bus Pool.

Nevada County Bus Pool

The Nevada County Bus Pool is a joint powers agreement between the Nevada Union High School District and five elementary school districts. The agreement provides for the joint furnishing of school transportation services under a shared cost arrangement. Each district pays according to a formula that is based on vehicle miles traveled, the district's contribution of equipment to the bus pool, and the district's tax base. State reimbursement for transportation expenses is handled separately by each district.

The bus pool was developed to eliminate the duplication of routes operated by the high school and elementary school districts. Impetus for the creation of the bus pool came from an elementary school district where bus operations had to be canceled because of high costs. A promise of the joint powers agreement was that a consolidated system would require fewer buses and in turn would reduce the cost of service to member school districts.

The bus pool appears to have demonstrated the value of consolidation to local school districts. After the system had been in operation for a year, a fifth elementary school district joined the four original members of the joint powers agreement.

Bus operating costs have increased under the consolidated system. Operating costs increased $.11 per mile during the first year and an additional $.11 per mile the second year, as shown below:

Year	Cost per Mile
1972 - 1973	$.55
1973 - 1974	$.66 (Bus Pool)
1974 - 1975	$.77 (Bus Pool)

The Nevada County Bus Pool attributes a major portion of this cost increase to inflation and considers consolidation to be a relatively minor component of the increase. Although the joint powers agreement established the highest driver's wage rate as the standard rate for the bus pool, this stipulation did not result in higher driver costs because total driving hours were reduced under the consolidated operation. An additional expense was incurred by moving maintenance operations to the Nevada County public works facility. However, this expense was partially offset by economies achieved by maintaining a larger number of buses, particularly in the areas of mechanical maintenance and body maintenance. Discounts on tires, fuel, and spare parts were obtained. These also contributed to a reduction in operating costs, although similar discounts could have been obtained without consolidation.

The establishment of the position of superintendent of transportation, with support staff, added significantly to the administrative cost of the bus pool. There were also nonmonetary costs in the form of schedule adjustments by participating school districts. Schedule changes of as much as fifteen to thirty minutes were necessary to plan the consolidated bus system schedule.

In summation, the bus pool has resulted in both costs and benefits. The principal benefits are an improved maintenance program, more efficient routing and scheduling, and a single administrative office for transportation. The costs are principally nonmonetary, in the form of changes to school schedules. The actual cost is unclear because of the effects of inflation, but it is apparent that total costs per mile have not declined during the first two years of the bus pool and may even have increased slightly.

Placer County Bus Pool

The Placer County Bus Pool was initiated by the failure of an elementary school district to obtain a tax override to purchase new buses. As a result of this failure and in anticipation of similar results in subsequent elections, nine school districts joined together in a feasibility study to determine the implications of consolidating school bus operations.

A basic feature of Placer County school transportation is that high school bus routes nearly duplicate bus routes of elementary school districts. Hence, the objective of the study was to determine how a single route system could serve both types of school districts. Four ground rules were established at the outset of the study: all personnel would be retained; major bus routes should not be altered; pupils must be delivered to school within thirty minutes of starting times; and no school schedule changes greater than thirty minutes should be required.

A consolidated routing and scheduling system was prepared for the high school district and two elementary school districts. To date, the consolidated system has significantly reduced the cost of school bus operations. A preconsolidation transportation budget of $200, 000 was reduced by $50, 000 under the new system. In 1973-74, before the plan went into effect, cost per mile ranged from $.97 to $1.27. In 1974-75 after consolidation, the cost per mile was $1.12.

Mileage was cut from 600 miles per day to 300 miles per day, which was made possible by the elimination of former route overlaps.

The Placer County Bus Pool has experienced two problems with consolidation: storage of buses and replacement of older equipment. The increase in fleet size required larger storage areas than before, but bus pool officials are negotiating for financial assistance to construct a combined storage and maintenance facility. In addition, the bus pool members are attempting to obtain "newly formed district" status with the state department of education to enable them to trade in old and outmoded buses for newer buses on a five to one basis.

Summary of the Nevada County and Placer County Bus Pools

Both school bus systems had a single basic feature in common: they were independently providing bussing over the same area for the high school and elementary school districts. This condition of duplicated services offered considerable opportunities for increased efficiency simply by coordinating planning of routes and schedules; elimination of the duplication was a major contribution to the savings accrued in each system.

In comparison, economies resulting from an increase in the scale of the maintenance operation in Nevada County were relatively small.

Major costs were incurred in both counties' bus pool programs of a monetary and nonmonetary nature: a supervisory staff was required to administer the operation; expanded storage and maintenance facilities were required; driver wages increased to a level commensurate with the highest wages in any participating school district; and school bus routes were changed.

On the benefit side, significant cost reductions were experienced by Placer County. (The same experience was not shared by Nevada County, where cost appears to have increased.) Improved maintenance of buses and more effective administration were also results of consolidation.

Potential for Consolidation in Marin County

To some extent the school transportation problems experienced in Nevada and Placer counties also hold true in Marin: tax override increases have been consistently defeated; several school districts are on the verge of abandoning school bussing; and widespread interest exists in consolidation as a method of reducing costs. However, Marin County is significantly different from Nevada and Placer counties in terms of the conditions that foster consolidation. School transportation is structured in different ways throughout the county. A wide variation exists in transportation costs among school districts. Rural districts experience different problems from districts in the urbanized portion of the county. The result is that only six of the fifteen school districts providing home to school transportation are regarded as candidates for consolidation.

The duplication of elementary and high school routes that make consolidation practical in Nevada and Placer counties exists in only one case in Marin County. San Rafael School District operates buses for high school students in the Dixie School District over routes similar to those along which Dixie provides pupil transportation. Both the high school and the elementary schools are located within the Dixie School District bussing area.

Other districts that have high schools, Novato and Shoreline, are unified school districts and already jointly operate elementary and high school transportation programs. The largest high school district, Tamalpais Union High School District, does not operate home to school transportation except for a special service to Marin City students.

It is reasonable to assume that school districts in proximity to each other might be candidates for transportation consolidation even if the route overlap feature does not pertain. The proximity of such districts would allow a minimum of time lost in deadheading between districts. For school districts located in relatively densely populated southeastern Marin County, this would be appropriate. These are: Dixie, Fairfax, Kentfield, Larkspur, Mill Valley, Reed Union, San Anselmo, San Rafael, and Sausalito. However, school districts in outlying areas would accrue considerable driver time and vehicle mileage in deadhead trips under consolidation. This would occur particularly when the same buses were providing bussing in two districts. Moreover, it would also occur to some extent if bus fleets operated independently but were jointly maintained under a consolidated maintenance program. School districts where this situation applies are: Bolinas-Stinson Union, Lagunitas, Novato Unified, and Shoreline Unified.

Moreover, these school district transportation programs are among the least costly in Marin County, suggesting that consolidation would have little justification financially, particularly if these programs were merged with more costly systems.

The Nevada and Placer counties' bus pool experiences demonstrate that consolidation requires expanded maintenance and storage facilities. Maintenance in particular must be handled in a centralized shop to take advantage of economies associated with fulltime maintenance and repair personnel.

In Marin County at the present time only three of the four biggest school district operated transportation programs have maintenance facilities. Two of these are located in rural districts. Shoreline Unified, which operates fourteen buses, and Novato Unified, which operates sixteen buses, are both located outside the "preferred" consolidation area in southeastern Marin. San Rafael has a maintenance facility capable of handling fifteen buses and, although this is in a centralized location in southeastern Marin, the district is currently operating to capacity and would therefore not be capable of handling additional buses. The fourth major transportation operator, the Marin County Schools Office, contracts for all maintenance and repair work for its thirty-six vans.

A further alternative would be the repair and maintenance facilities of GGBHTD in San Rafael. However, GGBHTD operates diesel transit coaches exclusively and would have to acquire additional equipment and manpower to handle the diverse types and sizes of school bus vehicles operating in Marin County. Also, the wage rate of GGBHTD mechanics is approximately $6.60 per hour, which is at least $2.00 per hour higher than the wage rate of the school district mechanics. Maintenance and repair costs could be expected to increase sharply if GGBHTD facilities were used. As this study was nearing completion, an additional maintenance alternative developed. The Marin County Department of Public Works is currently looking into the need to expand county garage facilities, possibly furnishing the opportunity to combine county and school district vehicle repair and maintenance programs.

In addition to the problem of available maintenance and repair facilities, several school districts do not own their school buses and would have to rely on other districts to provide vehicles. Fairfax, Kentfield, Larkspur, and Reed Union provide school bussing under contract with a private vendor and are reasonably satisfied with the present quality of service. Moreover, these districts provide bussing at less cost than most other districts in the county, so that in financial terms consolidation would be of questionable benefit.

Since route overlap was not found to exist to any significant degree, with the exception of the duplication of San Rafael routes in the Dixie School District, a second approach to consolidation was investigated: the concept that reductions in the unit cost of transportation might be achieved if the size of the transportation operations were increased.

To test this scale economy hypothesis, the larger school districts' transportation systems were examined to determine whether scale economics have resulted from the size of these operations. If unit costs in a given budget category were significantly lower than those of other districts in the same category, that cost was used as the norm for a consolidated operation of the same size or larger.

Development of Alternatives

Three alternatives were developed to demonstrate the feasibility of consolidation as a cost reduction measure for Marin County school transportation systems. The first alternative, a full consolidation of six school transportation systems, shows the impact of large scale consolidation in terms of cost to each school district. The second alternative uses the experience of contracted bus services to demonstrate the cost reductions that could be achieved if bus services were operated under contract. The third alternative is the consolidation of San Rafael's Terra Linda High School bussing with that of the Dixie School District.

Full Consolidation. This alternative was prepared to demonstrate the implications of large scale consolidation. The school districts included were Dixie, Lagunitas, Mill Valley, San Anselmo, San Rafael, and Sausalito. These school districts have the following characteristics in common: general geographic proximity; district owned buses; higher than average costs per mile; and the maintenance resources of a large school district (San Rafael).

The consolidation program incorporates cost components of the transportation operation such as fuel, insurance, drivers, and administration, but does not incorporate bus routes and schedules.

Bus routes and schedules were not consolidated because only two districts, Dixie and San Rafael, exhibit the route overlap characteristics that make route consolidation practical. Route consolidation between these two districts is treated as a separate alternative. The second reason is that consolidation of routes and schedules among school districts with geographically separate systems would require major changes in school hours if the same buses were to make home to school trips in two or more districts. Were such a concept to be advanced as a means of increasing the efficiency of school transportation systems, a simpler alternative would be to reduce the number of buses, adjust school schedules in each school district, and forego consolidation.

Equipment costs of the consolidated transportation program are presented for each school district in Table 34. Costs were computed on a per mile basis, using rates from Table 25 on page 106. Criteria and assumptions for setting rates are as follows:

1. Drivers are a key cost component of the transportation program and incremental variations in driver cost per mile have a major impact on total cost. Moreover, driver costs on a per mile basis are subject to the variability not only of wage rates but of productivity as well. Because of the uncertainty associated with driver costs, this component was approached parametrically.

TABLE 34

FULL CONSOLIDATION ALTERNATIVE
Cost by School District and Cost Category

	DRIVERS[1]		GAS, OIL & LUBRICATION[2]		TIRES & TUBES[3]		MAINTENANCE & REPAIRS[4]		INSURANCE[6]		ADMINISTRATION		TOTAL	
	ACTUAL	CONSOLIDATED	ACTUAL	CONSOLIDATED	ACTUAL	CONSOLIDATED	ACTUAL[5]	CONSOLIDATED	ACTUAL	CONSOLIDATED	ACTUAL	CONSOLIDATED	ACTUAL	CONSOLIDATED
DIXIE	24,000	24,000 24,000	2,728	2,714	931	603	10,460	6,634 9,650	1,297	603	5,000	2,714	44,416	37,268 40,284 37,268 40,284
LAGUNITAS	16,071	16,071 17,419	1,809	1,959	639	435	5,158	4,790 6,968	1,186	435	1,000	1,960	25,863	25,650 27,828 26,998 29,176
MILL VALLEY	70,369	70,369 83,126	8,862	9,352	4,598	2,078	19,791	22,860 33,250	1,317	2,078	1,184	9,352	109,404[8]	116,389 126,479 128,846 139,236
SAN ANSELMO	11,961	11,961 9,660	2,223	1,087	176	242	3,122	2,657 3,864	NA	242	1,446	1,087	18,926	17,276 18,483 14,975 16,183
SAN RAFAEL	90,012	90,012 146,870	17,428	16,523	4,650	3,672	56,644	40,389 58,748	3,702	3,672	16,778	16,523	191,214	170,791 189,150 227,649 246,006
SAUSALITO	24,518	24,518 26,147	4,761	2,942	1,956	654	14,178	7,190 10,459	7,437	654	4,070	2,942	56,920	38,900 42,169 40,529 43,798
TOTALS	236,931	236,931 307,347	37,811	34,577	12,950	7,684	111,353	84,520 122,939	14,939	7,684	29,478	34,578	446,745[8]	405,974 444,393 476,390 514,908

NA = Not Available

1 Upper figure based on existing cost per mile; lower figure based on $.80 per mile

2 @ $.08 per mile

3 @ $.02 per mile

4 Upper figure based on $.22 per mile; lower figure based on $.32 per mile

5 Includes: mechanics' wages; parts; equipment; and/or contracted services

6 @ $.02 per mile

7 @ $.09 per mile

8 Includes $3,283 contracted services for Mill Valley

The Dixie School District's driver per mile rate of $.80 was selected as a high parameter because it represents both a high wage rate ($4.25-$5.25 per hour) and an efficiently planned routing system. If consolidation were undertaken, it is reasonable to assume that wage rates would be set equivalent to the highest in the district, similar to the Placer County and Nevada County bus pools. The low parameter uses existing driver cost per mile for each school district.

2. The Dixie and Mill Valley rate of $.09 per mile was selected as a base figure for gas, oil, and lubrication. This figure is higher than that of a large system such as Novato's ($.07) but lower than San Rafael's system ($.10) where bulk purchasing and tax rebates are utilized.

3. A rate of $.02 per mile was selected, based on the experience of Novato and several other school districts, for tires and tubes.

4. Maintenance and repair parameters were established to reflect the rate of two major bus systems: Novato ($.22 per mile) and San Rafael ($.32 per mile).

5. The $.02 cost per mile of Novato's bus system was used as an insurance rate. It is acknowledged that insurance rates are more sensitive to risk factors than to fleet size and mileage. However, other school districts in the county experience similar insurance costs per mile, suggesting that this figure is a representative one.

6. The cost of administration was set at $.09 per mile, matching the experience of San Rafael. This is a conservative figure, recognizing that the rate for Novato is $.07 per mile and that some districts operate at even lower rates. However, the $.09 rate appears to be reasonably accurate when measured against the salary and overhead costs associated with a large bus system.

Costs could be reduced by 9 percent in the consolidated transportation program if the rates for drivers and maintenance were set at existing levels and $.22 per mile, respectively. This is demonstrated by the cost summary in Table 35. In effect, each transportation system would be operating with the same wage rates that currently exist and cost reductions would occur in nondriver cost components. If the higher driver wage rate but the lower

TABLE 35

FULL CONSOLIDATION ALTERNATIVE
Cost Variation by Cost Category[1]

COST CATEGORY	EXISTING COST	CONSOLIDATED COST	PERCENTAGE VARIATION
Drivers	236,931	236,931[2]	0%
		307,347[3]	+30%
Gas, Oil, and Lubrication	37,811	34,577	- 8%
Tires & Tubes	12,950	7,684	-41%
Maintenance & Repair [3]	111,353	84,520[4]	-24%
		122,939[5]	+10%
Insurance	14,939	7,684	-49%
Administration	29,478	34,578	+17%
Other	3,283[6]		
Total	$446,745	$405,974	- 9%
		444,393	- 1%
		476,390	+ 7%
		514,802	+15%

1. Based on 1973-1974 Transportation Budget
2. @ existing cost per mile rate
3. @ $.80 cost per mile rate
4. @ $.22 cost per mile rate
5. @ $.32 cost per mile rate
6. Mill Valley contracted services

maintenance cost of $.22 per mile were used, the result would be a 1 percent cost reduction. If the higher maintenance cost figure were used with either driver cost, the consolidated transportation program would be more costly than the existing systems.

A major problem demonstrated by Table 35 is that administrative costs would increase by 17 percent in a consolidated transportation system. However, the $34,000 cost of administering the consolidated program is not unrealistic if it is assumed that fulltime administrative personnel would be required. The cost of a transportation supervisor is $12,000-$15,000, and the additional cost of a dispatcher, clerical staff, and overhead expenses would constitute the balance of the $34,000 cost.

Given the reasonableness of the consolidated administrative cost, the root cause of the cost increase appears to be in the underreporting of existing administrative costs. The Mill Valley School District, for example, currently administers its entire school transportation program for $.01 per operating mile. This rate is fully $.06 below Novato, a large bus system, and $.04 below Lagunitas, a relatively small bus system, suggesting that the Mill Valley rate is artificially low compared with other school districts.

A review of school transportation budgets was undertaken to ascertain if costs were correctly reported. The review was limited to resources available, the state J-141 form, and surveys and interviews conducted with each school district. The conclusion was that cost data was correct insofar as it was reported. However, differences in accounting methods, which had been recognized previously, may be the major cause of discrepancies in transportation cost rates.

The impact of the consolidation alternative would be to reduce costs to all school districts but one, providing that existing wage rates and lower maintenance costs were employed, as illustrated in Table 36. The one exception is Mill Valley, where total transportation costs increase. The major contributing factor to the increase appears to be Mill Valley's unusually low existing administrative cost.

When the higher wage and the higher maintenance costs are used, costs increase in all school districts except Dixie.

The most significant result of the full consolidation alternative is that only a 9.9 percent reduction in transportation costs is achieved,

TABLE 36

FULL CONSOLIDATION ALTERNATIVE
Cost Variation by School District[1]

SCHOOL DISTRICT	EXISTING COST	CONSOLIDATED COST	PERCENTAGE VARIATION
Dixie	44,416	37,268	-16%
		40,284	- 9%
Lagunitas	25,863	25,650	- 1%
		29,176	+13%
Mill Valley	109,404	116,089	+ 6%
		139,236	+27%
San Anselmo	18,928	14,975	-21%
		18,483	+ 2%
San Rafael	191,214	170,791	-11%
		246,008	+29%
Sausalito	56,920	38,900	-32%
		42,169	+26%
TOTAL	446,745	405,974	-9.9%
		514,809	+15%

1. Based on 1973-1974 Transportation Budget.

2. Upper figure based on existing driver costs per mile, and .22¢ per mile maintenance and repair rate.

3. Lower figure based on .80¢ per mile driver cost, and .32¢ per mile maintenance and repair rate.

even under favorable conditions of low costs. When higher rates are assumed, the consolidation shows a net gain of 15 percent over existing systems.

Aside from the inconsistencies in school district cost accounting methods mentioned above, the major reason for the low margin of savings appears to be that greater economy of operation cannot be achieved by simply increasing the scale of operation. Small school bus systems reveal rates on a per mile basis similar to the rates of larger districts, suggesting that the concept of scale economics is not wholly applicable to school bus systems in Marin County. Per mile rates for Bolinas-Stinson, Lagunitas, Novato, and San Rafael reported in Table 25 illustrate this point. The Bolinas-Stinson Union School District's two bus system shows a maintenance and repair rate of $.06 per mile. In contrast, two larger systems -- Novato and San Rafael -- have maintenance and repair rates of $.22 per mile and $.32 per mile respectively. Lagunitas, which has only three buses, maintains and repairs its fleet at the same cost per mile as Novato. The major factor that is responsible for this reversal of normal cost trends is that overhead costs offset the economies that would normally be achieved by increasing the scale of operation. Smaller school districts that maintain their own fleets, such as Bolinas-Stinson, do not have large overhead costs. Others such as Lagunitas, that contract out maintenance and repair, appear to obtain such savings at relatively low cost because of a high level of community support for and contribution to school activities.

A major drawback of the full consolidation alternative is that no provision is made for maintenance and repair facilities. None of the participating school districts has the capacity for maintaining the vehicles of all six districts. It is assumed that maintenance facilities would have to be constructed at a considerable capital cost to the school districts or that an existing facility, such as San Rafael's, would have to be expanded. The outlay required for a maintenance facility would offset the savings achieved by consolidation.

Contract Services. The school districts in Marin County that provide school transportation through an independent contractor pay an average cost of $.94 per mile for bus service. This rate is well below the average per mile costs of the six school districts included in the full consolidation alternative (Dixie, Lagunitas, Mill Valley, San Anselmo, San Rafael, and Sausalito). If these school districts were able to contract for services at the current rate of $.94 per mile, instead of providing their own bussing, transportation costs would significantly decline.

The cost of home to school transportation under existing rates and under contract rates is presented in Table 37. Total costs are reduced between 8 percent and 42 percent under the consolidated program. The total reduction for all six school districts is 17 percent.

In financial terms, this alternative offers considerable advantages. However, several factors must be considered in implementing it, including: availability of buses from bus contractors; contract rates; stability of contract rates; and existing school facilities.

Nine buses are currently provided for school transportation by Mark IV School Bus Services in Marin County. The addition of the six above mentioned school districts would increase the number of buses by thirty. It is questionable whether Mark IV could or would provide that many additional buses without a long term service

TABLE 37

COST SAVINGS ACHIEVABLE BY CONTRACTING SCHOOL TRANSPORTATION

DISTRICT	Cost per Mile	Annual Home-To-School Miles	Annual Home-To-School Transportation cost	Proposed Budget @ 90¢ per Mile[1]	Total Transportation Budget	SAVINGS Amount	SAVINGS Percentage Of Total Budget
Dixie	1.47	23,321	$34,281	$21,921	$44,416	$12,360	28%
Lagunitas	1.18	19,685	23,228	18,504	25,864	4,724	18%
Mill Valley	1.05	89,108	93,563	83,761	109,404	109,404	12%
San Anselmo	1.57	12,075	18,928	11,350	18,928	18,928	40%
San Rafael	1.04	154,613	160,797	145,336	191,213	191,213	8%
Sausalito	1.74	30,193	52,535	28,381	56,920	56,920	42%
TOTAL			$383,332	$309,253	$446,745	$74,079	17%

[1] Average of School Bus Services rates in Fairfax, Kentfield, Larkspur and Reed Union school districts.

contract. Other major suppliers exist in the bay area, however, and under competitive bidding, further resources could probably be acquired.

For the contract alternative to produce the 17 percent reduction in transportation costs, cost of service rates equivalent to the four existing contracts must be provided. Competitive bidding for service generally increases the likelihood of lower rates. However, the problems associated with acquiring thirty buses may tend to drive rates higher.

Most bus service contracts contain a cost escalation clause that protects the vendor from incurring losses if operating costs increase, particularly drivers' wages and most recently the cost of gasoline. School districts may find that cost savings disappear if the vendor must exercise the escalation clause of the contract. It is possible that a significant increase in the number of school districts contracting for school bus services might encourage labor unions to take a more active role in school transportation, thus leading to an increase in driver wage rates.

School districts with investments in buses, drivers, and maintenance equipment would have to find a satisfactory disposition for their resources if transportation were to be contracted. One alternative for disposing of buses would be to temporarily lease them to the contractor so that the school district would still own and could rebuild its own transportation operation should the service contract expire.

Dixie-San Rafael Consolidation. The Dixie School District is the single case in Marin County where two school districts operate separate bus systems within the same area. Dixie transports pupils to seven elementary schools and two middle schools with a fleet of four buses. San Rafael carries high school students to Terra Linda High School on five buses. Approximately two miles of bus routes are served by both school districts. Consolidation would eliminate the overlap and would reduce the total cost of pupil transportation in the area.

Consolidation could be accomplished most efficiently if Dixie provided services to its own schools plus the Terra Linda High School. San Rafael now must deadhead buses to the Dixie School District to transport high school students. Dixie's buses are stored in the district and are equidistant from most neighborhood bussing areas.

However, consolidating services would add 500 students to Dixie's bussing load. Data from Table 20 on page 94 shows Dixie buses operating at a median occupancy of 53 percent, indicating that some spare capacity is available, but scheduling and routing requirements may limit the degree to which space can be used. Up to two additional trips in the morning and afternoon would be required if all trips were to be handled by Dixie. These trips could be accomplished prior to elementary school runs in the morning because the Terra Linda High School starts before schools in the Dixie School District. In the afternoon, the dismissal time would have to be arranged to enable buses to serve all school trips.

Because of the difficulty of rescheduling hours, a consolidation plan was developed that reduces driver and maintenance costs rather than consolidating bus routes and schedules. The plan provides for: maintenance and repair of Dixie buses at San Rafael maintenance rates; elimination of deadhead mileage between San Rafael and Dixie; and basing buses for the San Rafael's Terra Linda bussing program in the Dixie School District.

Four levels of cost reduction are provided under the plan as shown in Table 38. Costs are based on per mile rates presented in Table 25 on page 106.

Plan A: San Rafael buses used for Terra Linda High School students would be housed in Dixie and driven by Dixie drivers. Driver costs under this plan would rise $4,900 because of Dixie's higher wage rate. However, elimination of deadhead mileage between San Rafael and Dixie would save $8,900, producing a net saving to San Rafael of $4,000.

Plan B: Plan B is similar to Plan A with the difference that San Rafael buses would be driven by San Rafael personnel. At the lower wage rate San Rafael would accrue a cost saving of approximately $8,900 in its Terra Linda operation.

Plan C: Under this plan Dixie school buses would be maintained by San Rafael School District. The lower costs permitted by this plan would yield a saving of $3,700.

Plan D: This plan provides for both operation and maintenance of Dixie buses by San Rafael School District. Savings in driver and maintenance costs accrue because of the difference in

TABLE 38

TRANSPORTATION COST SAVINGS UNDER SAN RAFAEL -- DIXIE CONSOLIDATION ALTERNATIVE

ALTERNATIVE DRIVER COSTS	SERVICE AREAS		TOTAL
	Savings in San Rafael's Terra Linda Service	Saving to Dixie High School District	
Dixie Drivers	(Plan A)	(Plan C)	
	$ 4,000	$ 3,700	$ 7,700
San Rafael Drivers	(Plan B)	(Plan D)	
	$ 8,900	$13,000	$21,900

wage rates between the two school districts. The result is a reduction of $13,000 in Dixie's transportation costs.

In sum, the implementation of these four consolidation plans would produce cost reductions in school transportation ranging from a minimum of $3,700 for a single school district to a maximum of $22,000 for both school districts. San Rafael, with a budget of $191,000, would save 2 percent of transportation costs under Plan A and 5 percent under Plan B. Dixie School District, with a budget of $44,400, would save 8 percent under Plan C and 30 percent under Plan D.

These plan options provide for a level of cost reduction equivalent to the degree of commitment between the two school districts. The implications of each plan in order of increasing risk associated with implementation are as follows:

1. Plan C provides maintenance of Dixie buses by San Rafael. The plan assumes that San Rafael has the capacity in its maintenance program to accommodate four additional buses. It also assumes that Dixie is willing to relinquish its own bus maintenance program which is part of the school district's overall equipment maintenance program.

2. Plan B bases San Rafael buses in Dixie and staffs them with San Rafael drivers. The plan assumes that bus storage can be provided by Dixie and that San Rafael can permanently assign four to five buses to the Terra Linda service.

3. Plan A bases San Rafael buses in Dixie and provides Dixie drivers. The plan would require that Dixie hire additional drivers and that a satisfactory arrangement be made for Dixie to operate San Rafael buses. In addition, San Rafael would be assigning buses permanently to the Terra Linda service, as in Plan B.

4. Plan D requires the highest level of commitment to consolidation. Dixie contracts with San Rafael to provide bussing, using the buses of either school district. Dixie must satisfactorily resolve the reassignment of school district drivers and management of the bus maintenance program, and must negotiate an agreement for the use of the district's buses by San Rafael.

The Dixie-San Rafael consolidation alternative offers the best opportunity for achieving reductions in transportation costs with a minimum of risk and for demonstrating the value of transportation system consolidation. A clear justification for consolidation can be found in the duplication of the existing services. Both school districts will benefit from consolidation -- San Rafael through the reduction in deadheading costs to the Dixie School District and Dixie through the favorable cost of service rates obtainable from San Rafael. Each of the four consolidation options which were identified reduces transportation costs; selection of one option requires the specific costs and benefits to be weighed.

Large scale consolidation of school transportation systems is not recommended. The analysis of the full consolidation alternative as well as findings from data acquired and discussed in previous chapters indicate that consolidation will not reduce transportation costs or improve the level of service. The reasons are summarized briefly as follows:

1. The major reason for consolidating transportation systems, overlapping routes and service areas, is found in only two school districts in Marin County.

2. Economics of scale do not apply. Small school transportation systems can operate at costs equal to or lower than large school districts.

3. Maintenance facilities for a large consolidated system are not available and the cost of constructing a centralized maintenance facility would result in short term net deficits for a consolidated operation.

4. In the long term, the growth of public transit will provide a higher proportion of home to school travel, enabling some school districts to phase out of the transportation business.

5. Growth of school transportation into a large scale operation in Marin County will tend to push costs up, particularly in the area of driver wage rates.

Contracting school transportation appears to offer a significant potential benefit in terms of reduced costs. There are several uncertainties involved, including: basic cost of service; cost escalation; and existing school district equipment and personnel. On a small scale, contracted services appear to offer considerable savings for some school districts.

Several school districts have one or two unusually high operating cost components that inflate the total cost of the transportation program. In many cases, tax advantages and state purchasing can substantially reduce operating costs. Two areas where cost and reductions can be obtained are fuel and spare parts.

School districts are exempt from the federal gasoline tax of $.04 per gallon. Fuel purchases made at retail pumps are reimbursable for the federal tax if application is made through the retail gasoline dealer or the oil company. School districts must pay state taxes on gasoline, including the $.07 per gallon flat rate tax and the 6 percent sales tax.

Reductions in price are possible with bulk purchasing of fuel. Typical discounts are $.12 per gallon for bulk deliveries to 550 gallon tanks and 17.5¢ for "truck and trailer" deliveries to 10,000 gallon tanks. Normally, 550 gallon tanks are the minimum size required for a discount on bulk delivery. School districts that cannot justify the capital cost of a gasoline tank or have a tank of less than 550 gallon capacity can take advantage of the price differential by purchasing from local municipalities that have large storage tanks. Provided that accounting procedures agreeable to both parties can be arranged, this allows the school district to obtain $.12 to $.17 per gallon saving on gasoline without paying for a storage tank.

The following districts currently purchase fuel at retail sales outlets: Bolinas-Stinson, Fairfax, Kentfield, Lagunitas, Larkspur, Reed, and San Anselmo.

The state makes available to all school districts its purchasing power under a cooperative purchasing arrangement that applies to all types of material and supplies, including vehicle parts and equipment. The state publishes a quarterly booklet listing items that are offered under competitive bid. These include vehicle parts such as tires and tubes, air cleaners, oil filters, and other maintenance items. Competitive bidding enables these parts to be sold at 40 percent below the 20 percent net discount price typically available to school districts from dealers.

Good management techniques can also help reduce costs, and frequently a knowledge of the experience of other school districts can provide the needed information. The Marin County Schools Office processes school transportation cost reports and state reimbursement allotments and could act as a clearinghouse for information about school transportation.

11. COMBINATION POTENTIAL

The analysis of combination potential was conducted on a generalized basis to identify the maximum potential that exists for combined service. This approach is not intended to provide precise costs and/or savings but to identify those areas where combination is most feasible. Because of the generalizations used, the cost savings shown are the maximum attainable under ideal conditions which are unlikely to be fully realized.

The existing local transit system, discussed in Chapter 8, serves most of the developed areas of eastern Marin County. Of the total twenty-one school districts, only the following school districts in west Marin and northwest Marin are not served by regularly scheduled routes: Bolinas-Stinson, Laguna, Lagunitas, Lincoln, Nicasio, Shoreline, and Union.

Combination Under Existing Transit System

The percentage of students who could be diverted from school buses to public transit is shown in Table 39. This percentage is derived from estimates of the route coverage and level of service provided by the transit system in each school district. Factors

TABLE 39

THEORETICAL DIVERSION OF SCHOOL BUS PATRONAGE TO EXISTING LOCAL TRANSIT

		A. TRANSIT COVERAGE OF PUPILS BUSSED		B. TRANSIT COVERAGE OF SCHOOLS				C. TRANSIT CONVENIENCE FACTOR	D. FRICTION FACTOR	TRANSIT POTENTIAL (Product of A,B,C, & D)
		Pupils Within 1/4 Mile of Transit								
SCHOOL DISTRICT	Pupils Bussed By School District 1973-74	No.	% of Pupils Bussed	Elem. Schools Within 1/4 Mile of Transit	J.H. & H.S. Within 1/2 Mile of Transit	Total Schools In District	% Schools With Public Transit Potential	Percentage of Schools Conveniently Served By Transit*		
Bolinas-Stinson	222	100	45%	1	--	1	100%	--	--	--
Dixie	382	100	26%	3	2	9	56%	90%	90%	12%
Fairfax	300	165	55%	1	1	3	67%	100%	90%	33%
Kentfield	159	159	100%	2	1	3	100%	100%	100%	100%
Lagunitas	464	310	66%	2	--	2	100%	--	100%	--
Larkspur	200	166	83%	4	--	4	100%	61%	90%	60%
Mill Valley	1,188	268	24%	2	1	8	38%	100%	100%	9%
Novato	2,087	720	45%	11	3	18	77%	79%	90%	23%
Reed Union	770	580	75%	3	2	6	83%	100%	100%	50%
San Anselmo	305	220	62%	1	2	7	43%	58%	90%	14%
San Rafael	1,980	760	38%	7	2	14	58%	47%	90%	9%
Sausalito	380	270	70%	2	--	2	100%	100%	100%	70%
Shoreline	679	0	--	--	--	5	--	--	--	--
Tamalpais	720	720	100%	--	3	3	100%	100%	100%	100%
	9,836	4,680	48%	39	17	85	66%			

* Percentage based on number of connections to transit that can be made in both directions (e.g. northbound and southbound) within 30 minutes before school starting time and within 30 minutes after school dismissal time, out of possible total connections.

were developed to provide a general measure of the transit linkage between residential areas and schools where school transportation is now provided. Obviously these linkages will be less optimum than assumed by the calculations but they are probably indicative of the relative potential for use of public transit in each school district.

The number of pupils who are within walking distance of transit service was determined by calculating the number of bus stops within the quarter mile of transit routes. Each bus stop was assumed to have an equal proportion of the pupils presently bussed and the sum of pupils at these stops was considered to be a reasonable estimate of total students within transit coverage. The procedure assumes that pupils using bus stops located a quarter mile away from transit may have to walk an additional distance to home. Other pupils will be closer than a quarter mile.

All elementary schools within a quarter mile of transit routes and all junior high and high schools within a half mile were identified to produce a percentage of total schools in each district with transit coverage.

Convenience is defined as a bus arrival within thirty minutes of school starting and dismissal times. Starting and dismissal times at all schools in the district were summed and the number of times with convenient transit connections were represented as a percentage of the sum. For example, a district with four different starting and dismissal times at each of four schools would have a potential of sixteen transit connections. The process was simplified by assuming that all transit routes with thirty minute headways would be able to provide convenient linkages in both directions. It is assumed that walking time would be compensated by making minor modifications to starting and dismissal times.

The friction factor adjusts the transit potential percentage downward to account for the inconvenience of having to transfer between transit routes (i. e., "friction" in the free movement of transit patrons). Transfers are estimated to reduce patronage by 10 percent. The 10 percent reduction is applied to school districts with two or more transit routes available for home to school travel.

Transit potential is the product of the preceding four factors and indicates the percentage of students currently bussed by the school district who could be diverted to transit under these idealized conditions.

The ability of local transit to transport pupils who are now bussed ranges from 0 to 100 percent. The lack of any transit potential in Bolinas-Stinson Union, Lagunitas, and Shoreline Unified School Districts is explained by the absence of conveniently scheduled local service in each district. Of the two districts with 100 percent potential, Tamalpais Union falls into this category because the special Golden Gate Bridge, Highway, and Transportation District routes serving the school district are by definition public transit routes. Kentfield is the only other school district in the county where every student presently bussed could conveniently take transit to school.

Poor transit coverage in outlying areas of the districts accounts for much of the low transit potential. For example, Dixie has no service in Lucas Valley; Mill Valley has no service in the hill areas; and San Rafael does not have service on Pt. San Pedro Road.

Poor coverage of schools reduces Mill Valley's transit potential even further. Mill Valley has several schools situated well south of Miller Avenue that are inaccessible to transit.

Lack of conveniently scheduled transit contributes to a low transit potential in San Rafael. Route 21 provides service to Santa Venetia schools on sixty minute headways, substantially reducing the number of schools that can be conveniently served. The result is a transit potential of only 9 percent, a paradox for a district with the most important transit junction (Fourth and Heatherton streets) in Marin County.

Route modifications could be made to increase the percentage of pupils able to use public transit. However, the cost of such modifications is measured in terms of both potential passenger revenue and revision of schedules and transfer points. The cost of these modifications may outweigh the benefits attained from additional pupil patronage, depending on the value assigned to each modification. Potential route extensions to reach the pupil population are: (1) Route 50 on Atherton Avenue (Novato); (2) Route 1 on Olive Avenue (Novato); and (3) Route 21 on Paradise Drive and Trestle Glen Boulevard (Reed).

The maximum theoretical saving in school transportation costs achieved by diverting pupils to public transit was determined by estimating the number of buses eliminated by the diversion. A diversion curve (see Figure 7) was developed to show the correspondence between pupil reductions and bus reductions. The resultant reduction in bus fleet size and the savings associated with the reduction is presented in Table 40.

The diversion curve assumes that a one for one correspondence between pupil reductions and bus reductions is achievable only under optimum conditions. For example, a loss of sixty-six pupils would not normally correspond to the elimination of a sixty-six passenger bus (100 percent load factor assumed) because of the scattered locations in which the pupil reductions would occur.

The most probable relationship between pupil reductions and bus reductions is a one bus lag in reduction potential. For example, a ten bus system could conveniently drop a bus after a

FIGURE 7

CORRESPONDENCE BETWEEN PUPIL PATRONAGE DECREASE AND SCHOOL BUS FLEET REDUCTIONS

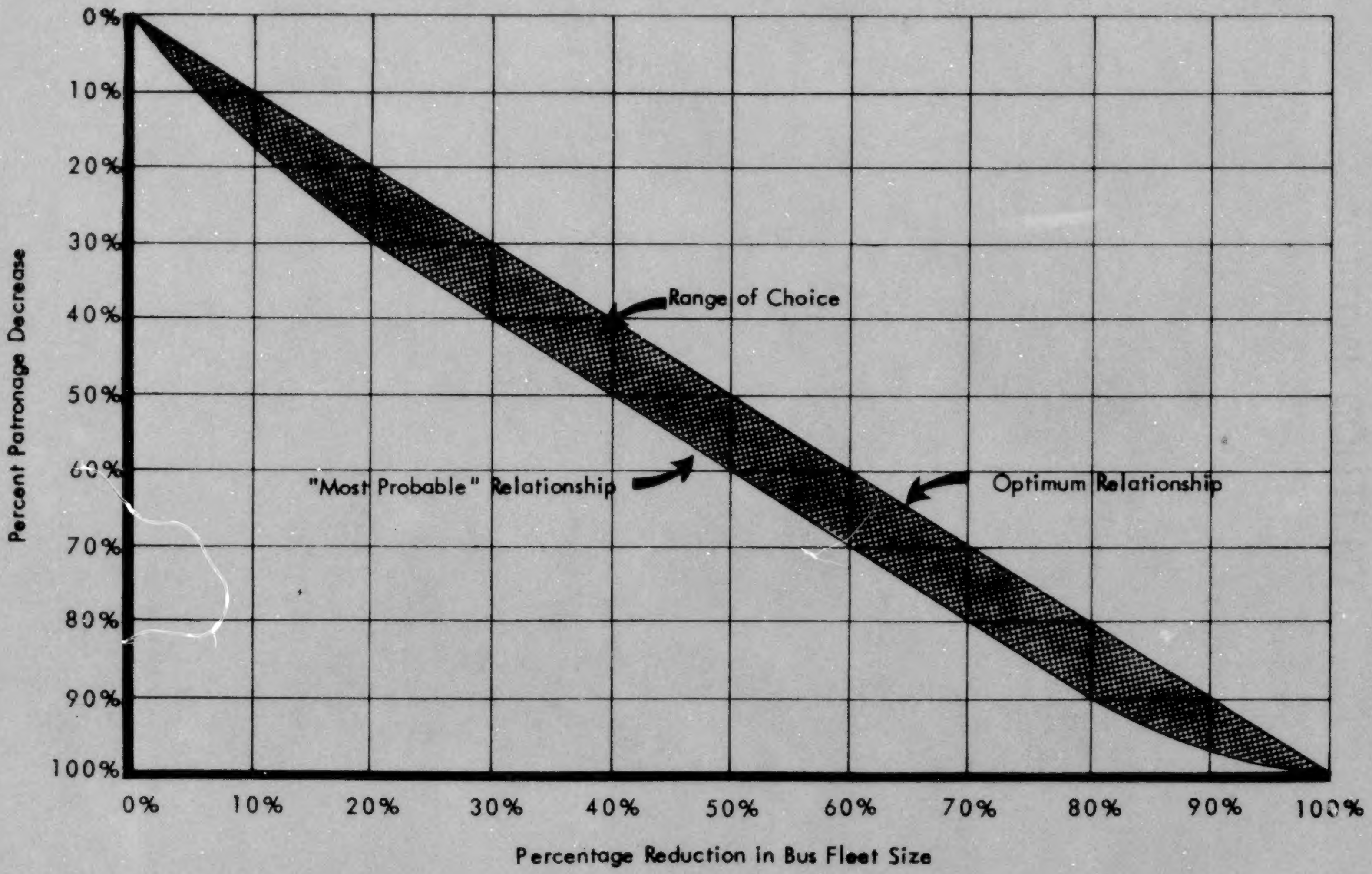


TABLE 40

COST CHARACTERISTICS OF ALTERNATIVE SYSTEM I

SCHOOL DISTRICT	PUPILS USING TRANSIT	REDUCTION IN SCHOOL DISTRICT TRANSPORTATION COST			
		Percent Reduction In Pupils Bussed	Reduction in Bus Fleet		Total Cost Reduction
			Units	Percentage of Total Units	
Bolinas-Stinson	DNA	--	--	--	--
Dixie	46	12%	--	--	--
Fairfax	100	33%	--	--	--
Kentfield	159	100%	1	100%	$7,900
Lagunitas	DNA	--	--	--	--
Larkspur	120	60%	1	50%	9,840
Mill Valley	107	9%	--	--	--
Novato Unified	480	23%	3	19%	30,240
Reed Union	365	50%	1	25%	10,440
San Anselmo	43	14%	--	--	--
San Rafael	178	9%	1	5%	2,630
Sausalito	266	70%	2	50%	26,280
Shoreline Unified	DNA	--	--	--	--
Tamalpais Union	(720)	DNA	--	--	--
ALL DISTRICTS	1,884	20%	9	8%	$87,330

20 percent reduction in pupil patronage, and a second bus after a 30 percent reduction, and so on. For a two bus system, a 75 percent reduction in pupil patronage would have to be achieved before one bus could be eliminated. Rerouting of the remaining fleet would probably be required.

Three alternatives were analyzed to show possible combination potential.

Alternative System I

The reduction in school bus fleet size shown in Figure 7 is one alternative to the existing school transportation system, achievable by the diversion of pupils to public transit. The cost savings are based on the assumption that each school bus costs a proportionate share of the transportation budget. Scale economies are assumed not to exist in school district bus operations.

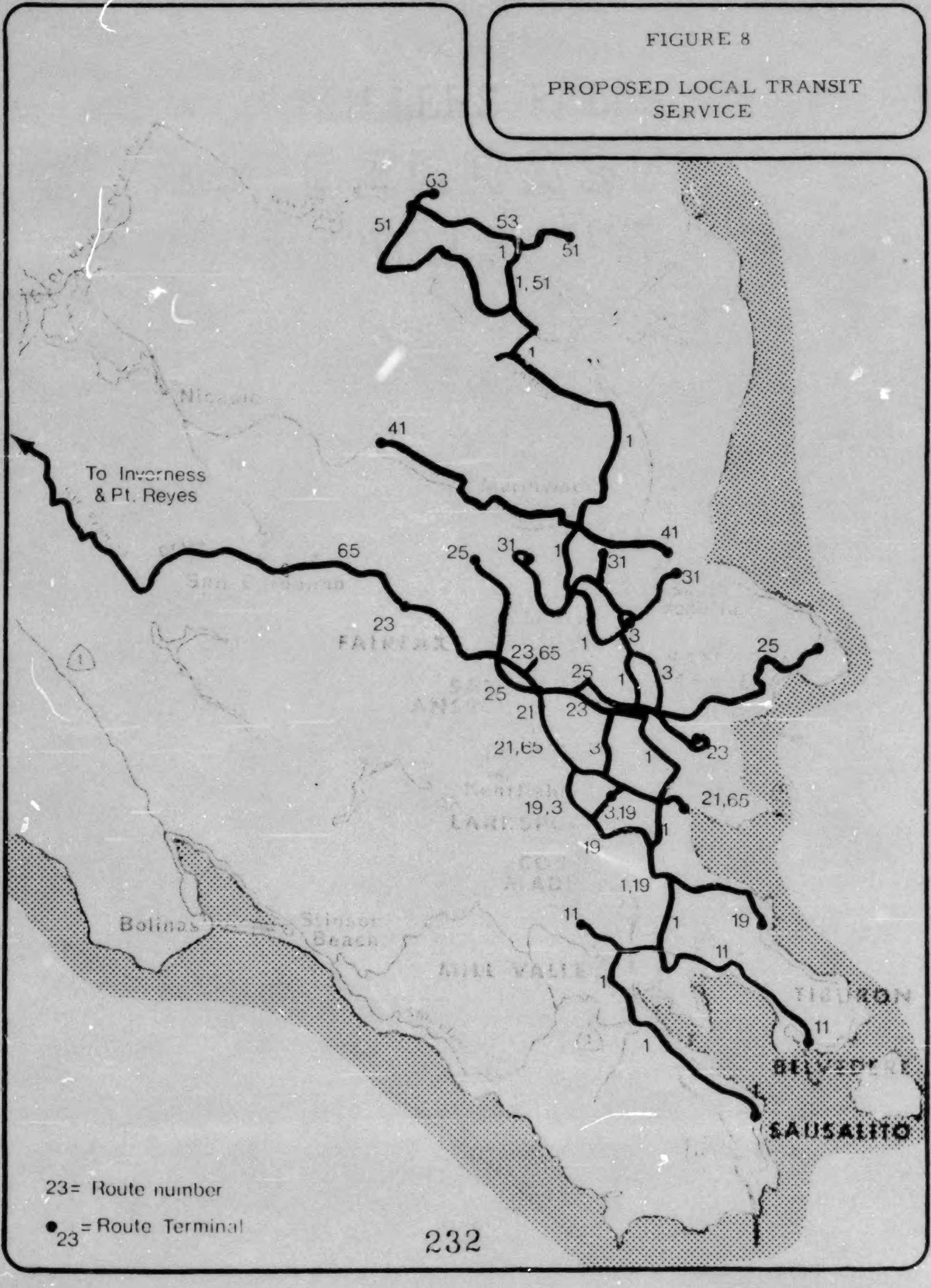
Alternative System I produces a total theoretical saving in school transportation costs of $87,330. This saving applies to home to school transportation costs, which are proportionate to the product of the total annual home to school miles and the average cost per mile for all district bus mileage.

This assumes also that unused capacity exists on the affected public transit service. If commensurate public transit capacity must be added, the higher unit costs of public transit service over school transit would reduce the indicated savings. It must also be noted that the cost of transportation would be shifted from the schools to the pupils at the current $.35 fare rate. The 1,884 pupils switching to public transit would incur a fare cost of over $1,300 per day or $230,000 for the school year. In order for combination to be a reasonable alternative in comparison to the savings realized, round trip fares would have to be reduced to $.25 or less.

The proposed local transit system for Marin County is shown in Figure 8. This system substantially increases the geographic coverage and level of service offered by the present system. The proposed system brings transit to eight communities that are presently unserved and provides full day scheduled service to an additional ten communities now served only intermittently. Transit will be within walking distance of 67 percent of Marin County residences, in contrast to the present 45 percent. All weekday service will operate from 6:30 a.m. to 10:30 p.m., with at most

FIGURE 8

PROPOSED LOCAL TRANSIT SERVICE


53
51
53
1
51
1, 51
1
Nicasio
41
1
To Inverness
& Pt. Reyes
41
65
San Geronimo
25
31
1
31
31
23
FAIRFAX
23,65
1
3
25
1
3
25
25
21
23
21,65
3
1
23
19,3
3,19
21,65
LARKSPUR
1
19
CORTE MADERA
1,19
11
1
19
Bolinas
Stinson Beach
MILL VALLEY
11
TIBURON
1
11
1
BELVEDERE
SAUSALITO
23= Route number
●23 = Route Terminal

thirty minute headway between buses, which increases the extent to which home to school transportation can be provided. Service to the high schools in the Tamalpais Union High School District is assumed to continue in the present form.

The same procedure used in the analysis of existing transit to determine the number of pupils transit can serve was also employed in the analysis of the proposed system as shown in Table 41.

Some school districts experience substantial gains in transit service. Transit capability for pupil transportation increases from 12 percent to 78 percent in Dixie and from 14 percent to 59 percent in San Anselmo. In Novato, transit potential increases from 23 percent to 48 percent. Most of these increases are attributable to route extensions, particularly in areas presently served only by school transportation.

Minor route modifications should be considered in two school districts to serve the maximum number of pupils. In Larkspur, Magnolia Avenue should have service between Doherty Drive and Tamalpais Drive. Tamalpais Drive, likewise, should have service between Magnolia Avenue and the Highway 101 interchange. Proposed

TABLE 41

THEORETICAL DIVERSION OF SCHOOL BUS PATRONAGE TO PROPOSED (TDP) LOCAL TRANSIT

		A. TRANSIT COVERAGE OF PUPILS BUSSED		B. TRANSIT COVERAGE OF SCHOOLS				C. TRANSIT CONVENIENCE FACTOR	D. FRICTION FACTOR	TRANSIT POTENTIAL (Product of A,B,C, & D)
		Pupils Within 1/4 Mile of Transit								
SCHOOL DISTRICT	Pupils Bussed By School District 1973-1974	No.	% of Pupils Bussed	Elem. Schools Within 1/4 Mile of Transit	J.H. & H.S. Within 1/2 Mile of Transit	Total Schools In District	Percent Schools Within ¼ Mile of Transit	Percentage of Schools Conveniently Served By Transit*		
Bolinas-Stinson	222	100	45%	--	--	--	--	--	--	--
Dixie	382	331	87%	7	2	9	100%	100%	90%	78%
Fairfax	300	165	55%	1	1	3	67%	100%	90%	33%
Kentfield	159	159	100%	2	1	3	100%	100%	100%	100%
Lagunitas	464	310	66%	2	--	2	100%	10%	100%	7%
Larkspur	200	166	83%	4	--	4	100%	100%	90%	75%
Mill Valley	1,188	288	24%	2	1	8	38%	100%	100%	9%
Novato	2,087	1,106	53%	13	5	18	100%	100%	90%	48%
Reed Union	770	580	75%	3	2	6	83%	100%	100%	50%
San Anselmo	305	240	78%	3	2	6	83%	100%	90%	59%
San Rafael	1,980	1,613	81%	10	4	14	100%	100%	90%	73%
Sausalito	380	270	70%	2	--	2	100%	100%	100%	70%
Shoreline	679	--	--	--	--	--	--	--	--	--
Tamalpais	720	720	100%	--	3	3	100%	100%	DNA	100%
ALL DISTRICTS	9,836	6,048	61%	49	21	85	82%			

*Percentage based on number of connections to transit that can be made in both directions (e.g. northbound and southbound) within 30 minutes before school starting time and within 30 minutes after school dismissal time, out of possible total connections.

Route 1 could be diverted along these streets with only a slight increase in mileage and time.

In the Reed Union School District, Route 19 should be extended to Route 11 via Trestle Glen Boulevard, so pupils in the Paradise Cay area can ride transit to elementary and junior high schools in the southern part of the Tiburon peninsula.

Alternative System II

The theoretical cost savings produced by pupils using the proposed public transit system are presented in Table 42. The diversion of pupils to transit and the resultant savings comprise Alternative System II. In relative terms, more than half of the pupils now bussed by school districts could be carried on the proposed transit system. The potential savings of $269,015 achieved by the reduction in school buses represents 24 percent of the present cost of home to school transportation, or 22 percent of the total school transportation budget.

The capability of the proposed system to accommodate pupil patronage should be significantly greater than in the existing system due to the high frequency of service and the number of routes available.

TABLE 42

COST CHARACTERISTICS OF ALTERNATIVE SYSTEM II

SCHOOL DISTRICT	PUPILS USING TRANSIT	REDUCTION IN SCHOOL DISTRICT TRANSPORTATION COST			
		Percent Reduction In Pupils Bussed	Reduction in Bus Fleet		Total Cost Reduction
			Units	Percentage of Total Units	
Bolinas-Stinson	DNA	--	--	--	--
Dixie	298	78%	3	75%	$25,710
Fairfax	100	33%	--	--	--
Kentfield	159	100%	1	100%	7,900
Lagunitas	32	7%	--	--	--
Larkspur	150	75%	1	50%	9,840
Mill Valley	107	9%	--	--	--
Novato Unified	1,001	48%	7	44%	70,040
Reed Union	385	50%	1	25%	10,440
San Anselmo	180	59%	1	50%	9,464
San Rafael	1,445	73%	13	68%	109,341
Sausalito	266	70%	1	50%	26,280
Shoreline Unified	DNA	--	--	--	--
Tamalpais Union	(720)	DNA	--	--	--
ALL DISTRICTS	4,612	42%	28	23%	$267,015

It is assumed that the Tamalpais Union High School District routes would continue to operate in the proposed system. However, if these routes are discontinued, high school pupils would have to utilize the basic local route system between home and school. Approximately fifty students would be without transit services as a result and an alternative bussing plan for these students is presented as follows.

Some of these students travel from Nicasio, some from Bolinas and Stinson Beach, and a few from Sausalito. The major objective is to provide alternative transportation for the Bolinas, Stinson Beach, and Nicasio pupils. It is proposed that Bolinas-Stinson, Lagunitas, and Mill Valley school districts be contracted with to bus students to the nearest available transit service or directly to school. Bolinas-Stinson and Mill Valley would split the transportation between Bolinas and Tamalpais High School, with Bolinas-Stinson furnishing twelve miles at the current rate of $.70 per mile and Mill Valley furnishing four miles at the rate of $.89 per mile. Assuming four trips per day for each district, the total cost would be $8,500 annually.

The same type of contractual arrangement would be made with Lagunitas School District, except that students would be bussed to Sir Francis Drake Boulevard in San Geronimo to transfer to Route 65 services or to the Route 23 terminus in Fairfax. The cost of this service annually would be approximately $5,000 at the present Lagunitas per mile operating cost of $1.19.

Together these measures would provide alternatives for all Tamalpais Union High School District pupils presently furnished with special Golden Gate Bridge, Highway, and Transportation District service. The cost to the district would be approximately $13,500, resulting in a saving of $21,500 from the present cost of $35,000.

Augmented System

The augmented system addresses the potential for using school transportation systems as a vehicle for providing transit in areas where transit is clearly not feasible at the present time. The augmented system specifically addresses the question of demand responsive service. The ability of demand responsive transit to fulfill travel needs that cannot be served by the proposed fixed route transit system is recognized and the operating characteristics and equipment resources of the school districts are regarded as an appropriate base structure for the system.

Table 43 presents the available buses and estimated patronage for demand responsive transit in each school district.

Patronage was determined by using a percentage of total district population as the estimated daily ridership. Normally 1 percent of the population is regarded as a conservative estimate of daily patronage in areas without extensive fixed route transit service.[6] However, a more conservative factor of .33 percent was used due to the extensive fixed route transit service provided by the proposed transit system. The factor was applied to 1975 dwelling units in each district, assuming an average ratio of 2.9 persons per dwelling unit.

Although school transportation systems provide a viable base on which to build demand responsive service, operating responsibility could be assigned in a number of different ways. One option is for school districts to provide the administrative personnel and facilities required for demand responsive service. Another

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[6] Arrillaga, Bert and Mouchahoir, G.E. "Demand-Responsive Transportation System Planning Guidelines," (Washington, D.C.: Mitre Corp., April 1, 1974).

TABLE 43

AUGMENTED SYSTEM FLEET RESOURCES AND ESTIMATED PATRONAGE

SCHOOL DISTRICT	AVAILABLE BUSES	PATRONAGE @ 3% OF TOTAL DWELLING UNITS
Bolinas-Stinson	2	18
Lagunitas	3	30
Shoreline	14	42
ALL DISTRICTS	19	90

option is the Whistle Stop Wheels program, which currently has dispatching facilities and administrative personnel. A third operation is School Bus Service (Mark IV Bus Lines) which furnishes transportation to four school districts. Bus operating rates for each of these alternatives have been considered in determining the cost of the service (Table 44); however, no estimate has been made of capital cost for radios or vehicle purchases.

The projected level of service is based on the school calendar. Public transit service would be furnished on weekdays during the school year from 9:00 a.m. to 2:00 p.m. and from 4:00 p.m. to 6:00 p.m., enabling school transportation to be furnished from 7:00 a.m. to 9:00 a.m. and from 2:00 p.m. to 4:00 p.m. The net number of available demand responsive service hours is assumed to be four, due to the fact that split sessions and other school district transportation activities require buses for three hours in midday.

The net cost of demand responsive service is estimated to be a maximum of $277,000, based on a minimum fare of $.25 per trip. The net cost per passenger with this fare structure is $14.35.

TABLE 44

AUGMENTED SYSTEM REVENUE AND COST CHARACTERISTICS

Estimated Daily Patronage	Operating Hours @ 6 persons per hour	Vehicles Required @ 4 hrs. per vehicle	Daily Mileage[1]	School Districts		Whistle Stop Wheels @ 78¢ per Mile	School Bus Contractor @ $6.50 per hour and 50¢ per Mile	Revenue		Net Daily Cost		Net Annual Cost @ 176 Days Operating	
				Ave Cost Per Mile	Total Cost			@ 25¢ Fare	@ 50¢ Fare	Min	Max	Min	Max
90	15	4	1800	$.73	$1314	$1404	$998	$22	$45	$953-$1292		$167.782-$227,392	

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[1] Based on 20 MPH average speed.

This cost is extremely high compared to other demand responsive transit systems. It is unlikely that the cost of the augmented system could be justified as a transit expenditure even with the demand responsive feature.

Summary of Alternative Systems Costs

The total cost of each alternative system is presented in Table 45. School district transportation costs are based on 1973-74 budgets and include all transportation activities, including field trips and other non home to school transportation. The cost of Marin County Schools Office transportation is also included.

The cost of the existing transit system is exclusive of the out of pocket cost to users. The figures shown are 1975-76 estimates of the Marin County Transit District transportation budget, including subsidization of GGBHTD local service, planning and administration, and support to the Whistle Stop Wheels program.

The proposed transit system costs reflect the 1975-76 operating budget as estimated by the MCTD. Special service to the Tamalpais Union High School District is not included in this budget.

TABLE 45

ANNUAL COST CHARACTERISTICS OF ALTERNATIVE SYSTEMS

SYSTEM	SCHOOL DISTRICT TRANSPORTATION COSTS[1]	SCHOOL DISTRICT SAVINGS	EXISTING[2] LOCAL SYSTEM	PROPOSED[3] LOCAL SYSTEM	AUGMENTED SERVICE	TOTAL TRANSPORTATION COSTS
BASE SYSTEM	1,210,800		1,315,000			2,525,800
ALT. SYSTEM I	1,123,500	87,300	1,315,000			2,438,500
ALT. SYSTEM II	929,900	281,900		3,820,000		4,748,900
AUGMENTED SYSTEM	928,900	281,900		3,820,000	167,700-227,400	4,916,600- 4,967,300

[1] 1973-1974 Cost.

[2] 1975-1976 Costs, excluding Tamalpais High School District payment ($35,000).

[3] 1975-1976 Net operating costs (source MCTD Transit Development Program); excludes capital costs and effect of higher property tax rate.

12. OPERATIONAL ALTERNATIVES

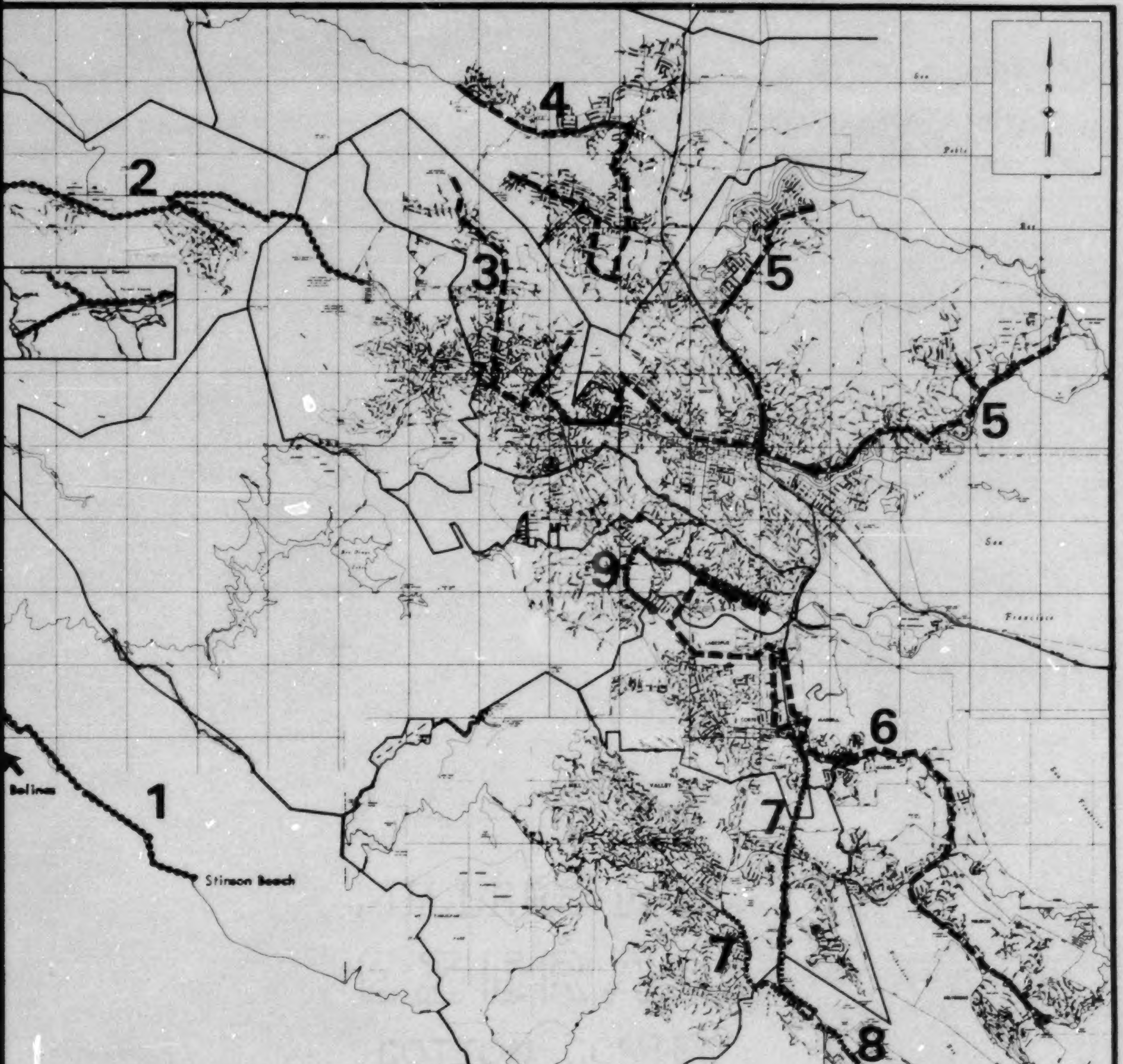
The analysis of transit accessibility at trip ends carried out in the foregoing analysis was carried a step further by examining specific transit linkages between residential neighborhoods and schools. Existing transit routes were evaluated in terms of their correspondence with school transportation route networks. Alternate routings and new routings were considered if the needs of both pupils and the general public could be conveniently served.

Nine alternatives were developed for discussion with the Technical Advisory Committee. These alternatives are grouped into three classifications and are shown in Figure 9: alternatives which use existing transit service without changes to routes or schedules, alternatives which require modifications to existing transit service, and alternatives which require the development of service. Where alternatives were based on existing transit service, schedules were prepared to show the correspondence between school transportation service and transit service.

The scope of service was defined for each alternative and an order of magnitude cost estimated, where applicable. The

FIGURE 9

COMBINATION ALTERNATIVES


4
2
3
5
5
9
6
7
1
Bolinas
Stinson Beach
7
8
Pupil-Oriented Transit Routes
New Route
Modified Route
Existing Route

allocation of costs to school districts could not be determined without more detailed development of the alternatives, hence only total costs are shown.

The alternatives are listed as follows and mapped in Figure 9. Each alternative contains a description and cost factor.

(1) Bolinas-Stinson Demand Responsive Transit;

(2) San Geronimo Valley Transit--Lagunitas;

(3) Modification of Transit Route 27--San Anselmo;

(4) Dixie Transit;

(5) New Transit Route from Santa Venetia to Peacock Gap;

(6) Improved Transit Service between Tiburon and Kentfield;

(7) Service for Marin City High School Students;

(8) Service for Marin City Elementary School Students; and

(9) Service for Kentfield Middle School Students.

Alternative 1: Bolinas-Stinson Demand Responsive Transit

The Bolinas-Stinson area does not currently have transit service but the need for some type of public transportation is recognized by both the local community and the Marin County Transit District. The objective of this alternative is to examine the establishment of local transit in the Bolinas-Stinson area and the assumption that providing school transportation in conjunction with public transportation will enable better service to be provided at less cost than a system serving the general public alone.

A midsize bus of the transcoach type or similar configuration would substitute for one of the two Bolinas-Stinson school buses during school hours and would serve the general public during the remainder of the day. During school hours both home to school transportation and field trips would be provided. During non school hours the bus would provide demand responsive service to the community and scheduled trips to Mill Valley.

The estimated total cost for this type of transit operation over a 176 day school year is as follows:

Capital Cost of Bus	$33,000
Cost of Radio Dispatching Equipment	2,000
Annual Bus Operating Cost	
@ 100 miles per weekday	
@ $1.61 per mile	28,336
Annual Cost of Dispatcher	10,000
Total Cost	$73,336

Alternative 2: San Geronimo Valley Transit--Lagunitas

This alternative initiates transit for the San Geronimo Valley. The backbone of the operation is an extension of Golden Gate Bridge, Highway, and Transportation District Route 23 that now operates between San Rafael and Fairfax. Adding one bus to this route would allow direct service to be provided to the San Geronimo Valley at sixty minute intervals. This bus would serve the home to school transportation needs in its circuit of the valley, following a route nearly identical to local school bus routes.

A second bus would provide home to school transportation during school hours and provide specialized transportation during non school hours. The specialized service could take a number of forms, depending on the specific target group, equipment required, and time available. The following options are proposed:

1. Express trips to clinics and hospitals in east Marin allowing direct access to these facilities for both valley residents and residents en route.

2. Express trips to shopping centers in San Rafael and vicinity, targeted specifically at senior citizens. Could be combined with No. 1 above.

3. Trips beginning and ending in San Geronimo Valley and linking major activity centers in east central Marin have two objectives: to provide convenient access to these centers for valley residents (incorporating Nos. 1 and 2 above); and to provide more direct service than offered by existing routes. An important feature of the project will be to evaluate whether direct transit linkage to these services substantially increases use of the transit system by transit dependents.

Costs were estimated as follows:

500 daily operating miles @ $1.61 per mile	$800
$800 @ 176 school days	$140,800 annual cost

Alternative 3: Modification of Transit Route 27--San Anselmo

The service area of GGBHTD Route 27 includes most of the San Anselmo School District and the route location corresponds closely with the routes of San Anselmo school buses. This alternative provides for the coordination of school schedules and transit schedules so that transit can conveniently serve home to school travel. It is designed to replace one of the two school buses currently operated by the school district.

Modifications to Route 27 schedules necessary to accommodate school travel needs would expand the 9:00 a.m. to 4:00 p.m. operating day for Route 27 an additional hour, requiring some additional expense, as follows:

Existing Cost	$65,214
Proposed Annual Cost	$70,431
Difference	$ 5,217

Alternative 4: Dixie Transit

The Dixie School District operates many school bus trips over major arteries, such as Las Gallinas Avenue, Freitas Parkway, Miller Creek Road, and Lucas Valley Road, as shown in Table 46. Transit operation over a similar route between lower Lucas Valley and Terra Linda could serve both school travel needs and community travel needs. This alternative provides for the modification of GGBHTD Route 27 or the development of a new feeder route operating exclusively in the Dixie School District with three buses. The service would potentially replace between one and two of Dixie's four school buses and would demonstrate the feasibility of using home to school pupil travel patterns as a major determinant in alignment of a new transit route.

TABLE 46

GOLDEN GATE BRIDGE, HIGHWAY, AND TRANSPORTATION DISTRICT SERVICE AVAILABLE TO MARIN CITY HIGH SCHOOL STUDENTS

Service Between Marin City and Tamalpais High School*

	AM							PM					
		Rt.5		Rt.10	Rt.10		Rt.10		Rt.10		Rt.10		Rt.10
Marin City	(7:05)	7:10	(7:30)	7:42	8:12	(8:30)	8:42	(2:30)	2:35	(3:30)	3:35	(5:30)	5:13
Tam H.S.	(7:20)	7:18	(7:40)	7:53	8:23	(8:45)	8:53	(2:15)	2:27	(3:15)	3:27	(5:00)	5:05

Service Between Marin City and Redwood High School*

	AM					PM		
		Rt.20	Rt.45	Rt.20	Rt.45	Rt.21		Rt.20
Marin City	(7:30)	7:05		8:05			(3.25)	3.42
Tamalpais & Madera		7:18	7:17	8:18	8:21**	3:20		3:32
Redwood H.S.	(7:55)		7:22		8:26	3:07	(3:10)	

* Times in parentheses are for existing Marin City Transit Co. service.

** Proposed stop. Not in current schedule.

Estimated costs for three buses are as follows:

3 buses @ 180 daily miles = 540 miles per day

540 miles @ $1.61 per mile = $869 per day

176 school days @ $869 = $153,000

Alternative 5: New Transit Route from Santa Venetia to Peacock Gap

This alternative reestablishes a transit route in San Rafael that was discontinued several years ago: from Santa Venetia through the downtown area and along Pt. San Pedro Road to Peacock Gap. The route has potential for serving Santa Venetia Middle School pupils who live in the vicinity of Pt. San Pedro Road and San Rafael High School students who live in Peacock Gap and in Santa Venetia. Currently San Rafael School District operates nine school buses along this route to serve both schools. Rerouting GGBHTD Route 21 to Peacock Gap from San Rafael and increasing frequency and hours of service would provide an alternative to large scale school bussing.

Costs were estimated for basic service at thirty minute headways and eight additional school trips as follows:

48 trips @ 10 miles = 480 miles per day

480 miles @ 176 days = 85,000 annual miles

85,000 miles @ $1.61 = $135,000

8 school runs = $37,000

Total Cost = $172,000

Alternative 6: Improved Transit Service between Tiburon and Kentfield

Currently, four transit routes provide partial local service between Tiburon and Kentfield: Route 5, Route 10, Route 21, and Route 45 (Tamalpais Union High School District service). However, none of these routes serve the six schools that exist in the three school districts en route. Cursory analysis demonstrates that minor adjustments to school schedules would enable pupils attending these schools to ride transit. The result would be the elimination of two to four school buses. A logical source of transit service would be to extend Route 21 from east Corte Madera to Tiburon and expand both the frequency of service and the service day. Route 45 would be eliminated. No cost was estimated.

Alternative 7: Service for Marin City High School Students

Marin City students attending Redwood High School and Tamalpais High School are provided with home to school transportation by the Tamalpais Union High School District under contract with Marin City Transit at a cost of $25,000 annually. Golden Gate Bridge, Highway, and Transportation District buses operate on the same routes as Marin City Transit. Tamalpais High School is easily accessible without a transfer and Redwood High School requires one transfer. These trips would be slightly less convenient than the existing school bus service, as shown by the schedule comparison in Table 47. However, even if students were reimbursed for each transit trip at the $.35 fare, the high school district could save $8,300 annually.

Marin City Transit county contract	$25,000
140 pupils @ $.70 per day @ 176 days	$17,300
Difference	$ 8,300

Alternative 8: Service for Marin City Elementary School Students

Golden Gate Bridge, Highway, and Transportation District buses operate frequently on Route 10 between Marin City and Sausalito, as shown in Table 47. This service could provide an alternative to

TABLE 47

GOLDEN GATE BRIDGE, HIGHWAY, AND TRANSPORTATION DISTRICT SERVICE BETWEEN MARIN CITY AND SAUSALITO ELEMENTARY SCHOOLS*

AM

		Rt.10		Rt.10		Rt.10	
Marin City	(7:45)	8:05**	(8:03)	8:35	(8:43)	9:05	(9:16)
King School	(7:55)	8:09	(8:13)	8:39	(8:51)		
Bayside School		8:10	(8:20)			9:10	(9:29)

PM

	Rt.10		Rt.10		Rt.10		Rt.10			Rt.10	Rt.10		Rt.10
Bayside School	11:30	(11:35)	12:33	(12:35)	1:33	(1:35)	2:33		(2:37)	2:34	3:01		3:31
King School	11:31		12:34		1:34		2:34	(2:30)		2:35	3:02	(3:15)	3:32
Marin City	11:35	(11:47)	12:38	(12:47)	1:38	(1:47)	2:38	(2:42)	(2:49)	2:38	3:05	(3:27)	3:35

*Times in parentheses are existing Sausalito School District service.

**Proposed run. Not in current schedule.

the school buses operated by the Sausalito School District. School children would have to walk slightly farther from Marin City apartment units and from Sausalito schools to use GGBHTD buses and it is uncertain whether Sausalito would realize any savings in bussing costs. No cost was estimated.

Alternative 9: Service for Kentfield Middle School Students

The analysis of combination potential (Table 39 on page 205) showed that Kentfield is better served by transit than any school district in Marin County. When specific transit routes in the school district were examined, opportunities were found for bussing Greenbrae students and Kentfield Middle School students by transit, as shown in Table 48. Whether this alternative would enable Kentfield to reduce bussing costs is uncertain. No cost was estimated.

TABLE 48

GOLDEN GATE BRIDGE, HIGHWAY, AND TRANSPORTATION DISTRICT SERVICE AVAILABLE TO PUPILS IN KENTFIELD SCHOOL DISTRICT

Service Between Greenbrae
and Kent Middle School via
Sir Francis Drake Boulevard

	AM								PM					
	Rt.1			Rt.1		Rt.1	Rt.47		Rt.1	Rt.47				Rt.1
Greenbrae School	7:16	(7:45)	(7:45)	7:46	(8:05)	8:16	8:20	(8:25)	3:34	3:35	(3:45)	(4:05)	(4:05)	4:04
Kent Middle School	7:21	(7:55)	(7:55)	7:51	(8:15)	8:21	8:25	(8:35)	3:29	3:30	(3:35)	(3:55)	(3:55)	3:59

Service Between Bon Air
Road and Greenbrae School
Via Sir Francis Drake Boulevard

	AM		PM			
	Rt.1			Rt.1		Rt.1
Bon Air Road	8:02	(8:05)	(2:10)	2:18	(3:20)	3:18
Greenbrae School	8:04	(8:10)	(2:05)	2:16	(3:15)	3:16

*Times in parentheses are existing Kentfield School District Service.

13. DEMONSTRATION PROJECT

A major aim of this study was to develop a demonstration project to test the feasibility of alternative transportation systems. This process required developing a workable plan for the demonstration project including selection of demonstration alternatives, consultation with effected school districts, investigation of demonstration project funding sources, and preparation of detailed project proposals.

Selection of Alternatives

The objective established for the demonstration project at the outset of the study was to test consolidation or combination as a means of making school and public transportation systems more cost effective. The objectives listed on page 18 would be used to evaluate the feasibility of the project.

Alternatives developed during the course of the practicum (presented in chapters 10 and 12) were evaluated as candidates for the demonstration project. The prime criterion for selection was that the demonstration be comprehensive enough to allow the results to be applied to the entire county.

Consolidation alternatives were rejected as candidates because of limited application to other school districts. The Dixie and San Rafael consolidation proposal is unique and cannot be applied elsewhere in the county. The large scale consolidation alternatives are not expected to produce long term net benefits for the participating school districts.

Combination alternatives have a wider application to Marin County. Each of the nine alternatives presented in Chapter 12 is a potential demonstration project for testing the cost effectiveness of combined transportation systems. Three alternatives could be implemented without funding assistance: alternatives 7, 8, and 9. These alternatives utilize surplus capacity in existing public transit routes to provide school transportation and would provide an effective demonstration of combined systems. However, the high level of transit service in these demonstration areas is not found throughout the county, and the demonstrations could not be generally applied to other school districts.

Most school districts require varying degrees of improvement in the level of transit service to enable a combined system to effectively provide school transportation. The value of the demonstration project lies in providing the seed money for capital and operating assistance over a one year period to achieve the increase in the level of transit service. An integral part of the demonstration project would be to devise procedures for utilizing savings accrued by the school district to defray the cost of the service increase. Whether the combined service would continue to operate without funding assistance subsequent to the demonstration year would depend on the level of expenditure and the degree to which school district costs were reduced.

The Technical Advisory Committee met on September 18, 1975 and recommended that two alternatives be selected for the demonstration project and be expanded into detailed proposals. The two alternatives recommended were: Alternative 2: San Geronimo Valley Transit--Lagunitas; and Alternative 3: Modification of Transit Route 27--San Anselmo.

San Geronimo Valley Transit--Lagunitas

Four factors were involved in the selection of this alternative.

1. Transit and school bus routes would virtually coincide if transit were provided in the San Geronimo Valley.

2. School schedules exhibit a spread of starting and dismissal times that could be readily adjusted to correspond with a transit service operating on thirty minute headways.

3. All students currently bussed could be carried on public transit.

4. The need for transit in the San Geronimo Valley is well recognized. Multiple target groups would be served, including elementary school pupils, high school students, college students, commuters, and the general public.

Initiating transit service would require an estimated $136,000 during the school year. However, given the above listed needs and opportunities the plan appeared qualified to attract funding from a variety of sources, including the Marin County Transit District, the Lagunitas School District, and federal demonstration grant programs. Alternative detailed plans were prepared and presented to the Lagunitas School District staff and board on October 1, 1975. Simultaneously, assessment of demonstration funding potential from the Urban Mass Transportation Administration (UMTA) was sought. The school board voted to present the plan to the community for approval contingent on obtaining favorable endorsement from UMTA.

Four sub-alternatives were developed for the San Geronimo Valley to provide a range of choices in selecting a final demonstration project. These alternatives are contained in Appendix XV. A brief synopsis of each alternative is presented below:

Alternative A: Golden Gate Bridge, Highway, and Transportation Route 23 Extension provides frequent direct service to east Marin for valley residents; no special services; and thirty minute headways.

Alternative B: College of Marin Shuttle provides high level of service to all College of Marin students en route; does not provide all school transportation; and sixty minute headways.

Alternative C: San Geronimo Valley Shuttle provides excellent service to schools; twenty minute headways; possibility of special services within valley; and hourly connections with Route 23 in Fairfax.

Alternative D: San Geronimo Valley-College of Marin Shuttle provides high level of service to College of Marin students; may not provide all school transportation; and costly.

In consultation with the Lagunitas School District, a variation of sub-alternative "A" was selected for refinement. The full description of this plan is contained in Appendix XVI. In brief, the plan provides for an extension of one Route 23 bus, and bases another bus in the San Geronimo Valley. This approach enables direct connections to be made to east Marin, but still allows a versatile operation to be conducted within the San Geronimo Valley. The valley bus is proposed to operate as a school bus; as a demand responsive vehicle within the valley; and in service to east Marin for special travel needs.

It was recognized that GGBHTD should be the operator of the system if the demonstration were to apply to other school districts where GGBHTD also operates. Typically GGBHTD policy in situations where local bus operations are replaced by GGBHTD is to hire the drivers. For the one year demonstration project, this policy is helpful in ensuring that school bus drivers would still be available if the project were not continued at the end of the funding year.

The cost of the San Geronimo Valley Transit alternative would depend on the specific program adopted. The general estimate of a total cost of $136, 000 per school year is clearly well beyond the means of the Lagunitas School District and would require funding support both during and subsequent to a demonstration project. A detailed breakdown of project cost and anticipated revenues is presented in Appendix XVI.

Modification of Transit Route 27--San Anselmo

The correspondence of transit routes and school bus routes in the San Anselmo School District indicated a potential for combined service. More importantly, the school board was considering the elimination of all school transportation for the 1975-76 year due to funding shortages. In anticipation of this event, a flyer had been sent to parents requesting them to identify how their child would travel to school if home to school transportation were not provided.

The detailed combined services plan prepared demonstrated how public transit could provide home to school transportation for half the children bussed during the 1974-75 school year. The plan required modification to school schedules and additional bus trips on GGBHTD Route 27 within the San Anselmo School District. The additional cost was estimated to be $5,000. The San Anselmo School District could benefit in two ways: if bussing were eliminated, 50 percent of the pupils previously bussed would continue to receive home to school transportation; if bussing were continued, one bus could be eliminated at a potential saving of $11,000 and the school district could then subsidize the additional transit service and still recover $6,000 in savings.

Golden Gate Bridge, Highway, and Transportation District Route 27 was modified to duplicate in part the route pattern employed by San Anselmo School District buses. Schools were included in the route alignment as shown in Figure 10 without making major deviations in the existing route integrity.

Pupil origins and destinations were mapped to facilitate the calculation of maximum loadings on buses, as shown in Table 49. Only areas currently provided with bussing were included.

More trips were added to Route 27 to accommodate a higher volume of passengers during peak periods. The result is the explicit schedule shown in Table 50. Additional bus trips are kept to a minimum. However the cost is expressed in unequal headways and unevenly distributed express runs.

FIGURE 10

PROPOSED CHANGE
GOLDEN GATE BRIDGE, HIGHWAY, AND
TRANSPORTATION DISTRICT ROUTE 27

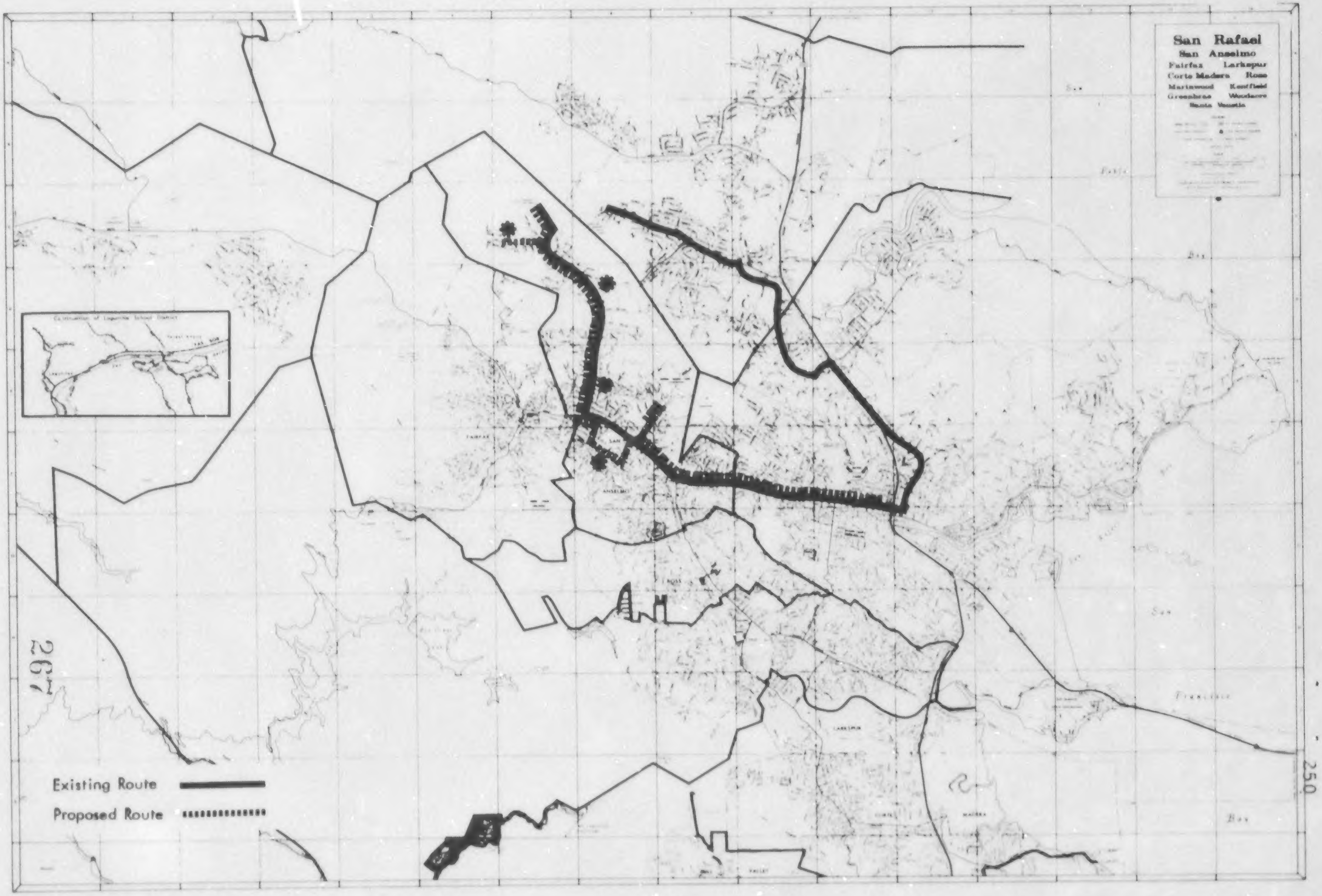

San Rafael
San Anselmo
Fairfax Larkspur
Corte Madera Ross
Marinwood Kentfield
Greenbrae Woodacre
Santa Venetia
Existing Route
Proposed Route
Fairfax
San Anselmo
Larkspur
Bay
San Francisco
Bay

TABLE 49

REVISED GOLDEN GATE BRIDGE, HIGHWAY, AND TRANSPORTATION DISTRICT ROUTE 27 SCHEDULE -- SAN RAFAEL TO SLEEPY HOLLOW

	To Sleepy Hollow								To San Rafael								
TRIP NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
BUS NO.	1	2	1	2	2	2	2	1	1	2	2	2	2	1	2	2	1
ROUTE																	
Sleepy Hollow (San Domenico School or Sleepy Hollow School)	8:30	8:44	9:27	10:12	12:00	1:56	3:27	3:58	8:34	8:49	10:16	12:04	2:04	3:14	3:31	3:48	4:02
Hidden Valley School (Butterfield at Green Valley St.)	-	8:35	9:18	10:03	11:51	1:47	-	-	-	-	-	12:13	2:13	3:23	3:40*	-	-
Brookside School (116 Brookside)	-	8:26	9:09	9:54	11:42	1:38	-	-	-	-	-	12:22	2:22	3:32		-	-
Yolansdale School (San Anselmo Ave. at Elm St.)	-	8:20	9:03	9:48	11:36	1:32	-	-	-	-	-	12:28	2:28	3:38		-	-
San Francisco Blvd. at Salinas Ave.	-	8:15	8:58	9:43	11:31	1:27	-	3:48	-	-	-	12:33	2:53	3:44		-	-
San Anselmo (the hub)	8:18	8:07	8:50	9:35	11:23	1:19	3:15		8:46	9:00	10:27	12:41	2:41			4:17	4:16
Forbes at Redhill	-	8:03		9:31	11:19	1:15	3:13			9:02	10:29	12:45	2:45			-	-
San Rafael	8:05	7:50		9:18	11:06	1:02	3:02			9:14	10:41	12:58	2:58			4:24	4:23
San Anselmo Pupils	0	31	56	24	8							8	21	56	56	0	0
San Domenico Pupils	30	40	0	0	0							0	0	0	0	45	45
Maximum Loading	30	70	56	24	8							8	21	56	56	45	45

*Turnaround at Oak Knoll Drive and immediate return to San Domenico School for P.M. pickup.

TABLE 50

PROPOSED SAN ANSELMO SCHOOL SCHEDULES

		STARTING TIME		DISMISSAL TIME	
SCHOOL	Grade	Existing	Proposed	Existing	Proposed
Sleepy Hollow	1 - 3	8:55	9:30	2:00	2:35
	4 - 5	8:55	9:30	3:10	3:45
	1 - 3*	10:05	10:20	3:10	3:35
Brookside	1 - 3	8:55	9:15	2:00	2:20
	4 - 5	8:55	9:15	3:10	3:30

ROUTE 27 PUPIL PATRONAGE BY TRIP

SCHOOL	GRADES	START TIME	BUS TRIP NO.	PUPILS	DISMISSAL TIME	BUS TRIP NO.
Sleepy Hollow	1 - 3	9:30 am	3	24	2:35 pm	14
	4 - 5	9:30 am	3	32	3:45 pm	15
	1 - 3*	10:20am	4	24	3:35 pm	15
	kdgn.*	8:55 am	2	8	11:55am	15
	kdgn.*	12:10pm	5	8	3:10 pm	14
Hidden Valley	6 - 8	8:45 am	2	24	3:13 pm	14
Brookside	1 - 3	9:15 am	3	21	2:20 pm	13
	4 - 5	9:15 am	3	14	3:30 pm	14
	kdgn.*	8:45 am	2	7	11:45am	12
	kdgn.*	12:15pm	5	7	3:15 pm	14
			TOTAL	169		

* Staggered schedules

A corresponding change was required in school schedules, as indicated in Table 50. The largest such change was thirty-five minutes.

Pupil patronage was disaggregated by starting and dismissal times as indicated in Table 50 so that students could be assigned to bus trips. Bus loadings were calculated in Table 49 and combined with existing patronage from the San Domenico School. Maximum loading was seventy pupils, which exceeds bus capacity. (GGBHTD policy is to permit fifteen standees in addition to the forty-five seat passengers, allowing a total load of sixty passengers).

The cost characteristics of the modified system are presented in Table 51. Rescheduling buses added only one and a half hours (8 percent) to the total service day. Costs increased in the same proportion, from $65,000 to $70,000, requiring an additional expenditure of approximately $5,000. Revenues are assumed to remain the same.

More than half of the San Anselmo District's transportation requirements are met by this plan. It is assumed that a bus and driver could be withdrawn from service and savings of $11,000

TABLE 51

COST COMPARISON OF EXISTING (1974-75) AND PROPOSED ROUTE 27

I. DAILY OPERATING HOURS

	EXISTING		PROPOSED	
BUS NO.	SCHEDULE	HRS.	SCHEDULE	HRS.
1	8:12 a.m.-4:08 p.m.	8	8:05 a.m.-9:27 a.m.	1.5
			3:48 p.m.-4:23 p.m.	.5
2	8:12 a.m.-4:08 p.m.	8	7:50 a.m.-4:24 p.m.	8.5
3	4:08 a.m.-3:43 p.m.		8:00 a.m.-4:00 p.m.	8.0
	8:17 a.m.-8:42 p.m.	1		
TOTAL		17		18.5

$$\text{Increase} = \frac{18.5 - 17}{17} = 8\%$$

II. ANNUAL OPERATING COSTS

	EXISTING	PROPOSED
Expense	$65,214	$70,431
Revenue	22,131	22,131
Deficit	$43,083	$48,300

Difference = $5,217

achieved. If these savings were realized, San Anselmo could finance the additional GGBHTD cost and save a net $6, 000. However, the plan assumes no special fare reductions for student bus users and San Anselmo pupils would pay approximately $20, 000 in out of pocket costs to use the system. Added to the operations cost increase, this amount brings the total cost to $25, 000, compared with a savings to the San Anselmo School District of $11, 000.

The conclusions that can be drawn from this illustration are as follows:

1. On a quid pro quo basis, public transit is more costly than school bussing. Even if the additional operations cost of $5, 000 were not incurred, fare costs would exceed San Anselmo's transportation saving by a margin of $9, 000.

2. Pupil patronage actually costs only $5, 000 in operational surcharge, assuming no decrease in existing revenue passengers as a result of schedule changes and capacity loads.

3. On routes where surplus capacity is available, diverting pupils from school buses to transit incurs no extra public costs, even if pupils ride free (assuming no route changes).

4. If transit service is expanded at a future time, increased capacities on the transit system should permit more pupils to ride free at no additional cost to the system.

The California Legislature on August 14, 1975 passed Senate Bill 220 providing additional revenue to school districts. As a result of increased funding, the San Anselmo School District reinstituted home to school transportation for the 1975-76 school year. The district will continue to explore the plan developed in case of budget cuts in the 1976-77 school year.

The Urban Mass Transportation Administration has verbally indicated that our project, San Geronimo Valley Transit--Lagunitas, has low priority in terms of current federal demonstration programs. However, no official word has been received at this time.

The Technical Advisory Committee on November 12, 1975 instructed me to continue to seek funding sources for the project.

It is recognized that the development of an evaluation model for the demonstration project was one of the major tasks in this practicum. However, the TAC agreed that this was as far as we could go at this time. The Committee agreed to work with me in developing an evaluation model using the objectives listed on page 18 when funding becomes available.

The prospect of enacting legislation in 1976 to provide financial support for a demonstration project will be discussed with local representatives Assemblyman Michael Wornum and Senator Peter Behr.

Two types of legislative support are to be explored. A direct appropriation could be authorized, or a temporary change in state school transportation reimbursement procedures could be obtained. Modification of the state reimbursement procedure to enable school districts to acquire a fixed transportation allotment rather than a variable sum would provide more flexibility in funding transit.

14. CONCLUSIONS

School districts are encountering increasing budget pressures as a result of legislative restrictions on taxing authority, inflation, and declining enrollment. As a result, school transportation programs are being eliminated or reduced in scope each year. Therefore, the issue is not so much whether transportation service can be provided in a more cost effective manner by school districts or public transit, but whether transportation will be provided to students at all in the future.

The impact on the student when school transportation is eliminated can be a severe hardship when the distances are great and no other form of transportation is available. There is also a safety concern, particularly among the lower grades, when students must walk along highway shoulders and cross unprotected intersections on the way to and from school.

Consolidation

While some potential has been identified for consolidating routes or maintenance functions between two school districts, there is no real potential for countywide consolidation. The individual school districts appear to be making very efficient use of both equipment and personnel in the service that is currently provided.

Combination

The potential benefits from a combined public transit and school bus service are numerous. These include better use of public monies since fewer buses and drivers should be required, reduced financial pressure on school district budgets, and increased utilization of public transit by school children who would be more inclined to carry this practice into their adult behavior. Unfortunately, there are major financial, operational, and administrative barriers that must be overcome in order to utilize these potential benefits.

The information gathered in this practicum has shown that school bus operations have substantially lower unit costs than public transit. For example, the average school district bus system cost in Marin County for 1973-74 was \$.99 per mile or \$.25 per student trip. Golden Gate Bridge, Highway, and Transportation District's average cost for Marin County local service is \$1.36 per mile or \$.59 per patron.* The major reasons for these cost differences are drivers' wages, work rules, and different operational policies. Public transit drivers receive 50 to 60 percent higher hourly wages than school bus drivers. School bus service is provided primarily in the morning and afternoon, often with parttime drivers working split shifts. Therefore, any shift of school bus patrons to public transit has the appearance of increasing costs. The degree to which costs actually increase is a function of whether additional public transit routes and buses are added or excess existing capacity is used.

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*1974-75 costs. Corresponding figures for 1973-74 are \$1.18 and \$.53.

From a pragmatic standpoint, it is necessary to provide concrete incentives both to school districts and transit operators to take the risks of initiating programs for public transit to assume the burden for home to school transportation. From the schools' side, the current reimbursement formula used by the state for transportation subsidies provides little incentive for this risk taking. Under this formula a school district such as Lagunitas that currently has 60 percent or more of their transportation cost underwritten by the state would lose 60 percent of any savings back to the state.

Efforts should be made by local officials through the state department of education and the legislature to obtain a fixed amount of transportation monies from the state in lieu of the current sliding formula used for reimbursement. Such a position would appear to be in accord with the Serrano-Priest Decision which the legislature is charged with implementing. Also since the state is currently paying the transportation monies to the schools it would not cost them additional monies over what they are now spending.

If this should take place, the advantage to the local public transit agency is that they would receive the state transportation monies through the schools by providing regular service that benefits the students. Providing service exclusively for schools does not have to be initiated, the local public transit agency does not incur any increase in costs and it obtains increased patronage and public support from the school districts.

The peak demands for public transit and school service occur at the same time in the morning although they are offset somewhat in the afternoon. The school buses are sized to accommodate high peak loads which result in vehicles of sixty to seventy passenger capacity.

Transit coaches are operating with forty-five to fifty passenger capacity and a greater number of coaches would be required to provide an equivalent level of service.

This problem can be circumvented by spreading school starting times and dismissal times to reduce the peak demand for school trips. Moreover, the school day can be shifted to fit more precisely into the period of reduced demand for public transit (9:00 a.m. to 4:00 p.m.).

The route structure of the existing public transit school buses is also quite different. The relatively few local routes operated by GGBHTD are rather long and operate at thirty to sixty minute headways. School bus routes, particularly for elementary schools, are short loops that often vary with each run.

Given the current size and headways of local public transit service, the Marin County Transit District does not have the resources to meet home to school transportation demands. Even with the expansion proposed by the transit district (and defeated by the voters) less than 50 percent of the capacity needed for school transportation would be available. Substantial additional public transit service must therefore be provided before school travel demand could be met.

The major administrative barriers to providing school transportation relate to the restrictions placed by the Urban Mass Transportation Administration on use of federal transit subsidies, the state reimbursement formula, and the current fare policies which would shift the financial burden of transportation from the schools to the student.

Under the UMTA regulations, home to school transportation can only be provided as part of regular revenue service. If the students pay regular fares, the substitution of public transit for school transportation would cost students $2, 500, 000 at the $. 35 fare. If school children were to ride for free, it would also probably be necessary to allow all children to ride free because exemption from fares could not be applied selectively based on occupation. Such a policy would require the transit district to absorb a cost of millions of dollars per year plus lose revenue from the 40 percent of public transit patrons in Marin County who are students. Clearly, some middle ground is required if public transit should provide school service effectively.

A mechanism is needed to facilitate fare reductions for youth patrons. Justification for special fares can be provided from three points of view. Youth are generally not employed and therefore are at an economic disadvantage in purchasing transportation services. In the home to school market the youth is a "captive" and steady customer who would use transit five days a week. Traditionally, such frequent users of public transit have been accorded some reduction in fare since they are the backbone of the transit service. Finally, the ability to capture young patrons in the transit system has general benefits in establishing habit patterns for transit utilization as adults.

The most common mechanism for providing fare differentials that meets all three of the above criteria is a commuter pass. This would allow the purchase of a multi-ride pass for a discounted price. Such a technique has two advantages for the proposed situation. It restricts the reduced fare to frequent users who most need the subsidy, while charging occasional passengers full fare. It would also provide a convenient mechanism for the schools to transfer monies to the transit district through direct subsidy related to the actual number of their pupils who would be benefiting from the transportation service.

The need for contractual and administrative procedures between the carrier and the school district would also be reduced.

A change in the education code would be required to allow the schools to use their state aid monies for this purpose without being penalized for any savings that result. The actions necessary to bring this about have been discussed adequately in this report.

In summary, the orientation of public transit to providing transportation to school students would provide a higher level of transit service to all Marin County residents at a substantial increase in cost, both to students and taxpayers. This cost would be borne primarily by the taxpayer due to the subsidies that would be required. However, this is considered to be appropriate and consistent with the philosophy of supporting necessary public services with broad taxing powers rather than with user charges to the relatively smaller group using the system at any point in time.

As a result of this project, the Technical Advisory Committee has approved recommendations as follows:

Consolidation:

1. Large scale consolidation of school transportation systems should be avoided due to the following factors: general absence of redundant services; lack of scale economics; insufficient maintenance facilities; long term trend toward public transit; and risks associated with increasing the size of operation.

2. San Rafael's Terra Linda bussing should be consolidated with Dixie's transportation program to eliminate the provision of redundant services in the Dixie School District.

3. The Marin County Schools Office should act as a clearinghouse for information on county school transportation operations, and provide assistance in transportation management if requested by school districts.

4. Substantial reductions in fuel and spare parts can be obtained under present county, state, and federal programs and regulations. It is recommended that these cost cutting measures be implemented in several school districts.

Combination:

1. Nine alternatives are recommended as candidates for combining school and public transportation systems. Alternatives range from those permitting immediate implementation to substantial modifications of the existing transit system.

2. San Anselmo and Lagunitas school districts are recommended as sites for a demonstration project. Modification of existing transit service is recommended at San Anselmo and initiation of new service is recommended in Lagunitas.

Legislative: It is recommended that Marin County school boards, the Marin County Transit District, and the county board of supervisors pursue state legislative support for both a change to the education code (state reimbursement formula for transportation assistance) and a demonstration project to provide increased public transit service to school students.

As a result of the Serrano-Priest Decision, the state board of education has developed a proposal that will support 50 percent of school transportation costs with state monies and provide mechanisms for the remainder of the funds to be obtained from local tax sources. The demonstration projects outlined in this practicum would provide an opportunity to test procedures for supporting and encouraging public transit service for school transportation. The project should be pursued with both education and transportation committees of the legislature with the emphasis on maximizing the transportation benefits for both students and the general public.

Public Transit: The need for expansion of public transit in Marin County has been recognized and documented by the Marin County Transit District. Unfortunately the voters of the county have not been motivated to provide the necessary funds for the proposed transit expansion. Considering the increasing dependency the students will have on public transit as more school transportation service is eliminated, it is recommended that the school district boards of trustees take an active role in supporting improved transit service. This should take the form of school board resolutions, appearances before the Marin County Transit District Board of Directors, and public endorsement of future propositions to provide tax increases for transit expansion. As a condition to this support, the Marin County Transit District should include in their goals and operations plans, an increased level of service to schools in general and specifically to those school districts faced with major reductions in transportation services.

On November 12, 1975, the Technical Advisory Committee voted to continue the work of this project. The committee pledged to join with the Marin County Schools Office and the Marin County Transit District to find ways of implementing as many as possible of the nine alternatives presented.

This practicum has brought together many agencies to try to solve a problem perplexing to all. The change in attitude of the various agencies is immeasurable. It is my opinion that this project is only a seed to be nurtured.

Recognizing that I was unable to actually implement a pilot project, this concept of combining services without a legislative mandate is being accepted by a growing number of the agencies involved in this project.

EPILOGUE

The most important part of this practicum was to bring about change in the education community that would reflect improvement as compared to present practices. There are many side benefits already evident as a result of this project.

The most significant changes to date are as follows:

1. Members of the Technical Advisory Committee were instrumental in getting the Marin County Transit District Board of Directors to reduce student fares from $.35 to $.25 beginning January 1, 1976.

2. The Sausalito School District is contracting with the San Rafael School District for maintenance of school buses at an anticipated savings of $3,000 per year.

3. The Dixie School District and the San Rafael School District have combined a bus run in Lucas Valley that allows the reduction of one bus route for the high school students. Total savings will be approximately $1,500 per year.

4. The Marin County Schools Office has revised the job description for transportation supervisor. Due to retirement of the present supervisor, the job description for the new director of transportation has been changed to an exempt management position with added responsibility of serving as a consultant to school districts.

5. The Golden Gate Bridge, Highway, and Transportation District and the Marin County Transit District have agreed to a plan for transit service to Indian Valley Colleges.

6. The San Rafael School District Board of Trustees has requested the Marin County Committee on School District Organization to study the unification of the Dixie and San Rafael School Districts. One of the reasons for study is to eliminate the duplication of services such as school bus transportation.

7. There will be a joint meeting of the Marin County School Boards Association and the Board of Directors of the Marin County Transit District on January 8, 1976. This meeting will be to discuss the alternatives developed in the practicum.

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IMPLEMENTATION OF A PILOT DEMONSTRATION PROJECT TO COMBINE SCHOOL BUS AND PUBLIC TRANSIT SERVICES

by
Robert E. Spain

Submitted in partial fulfillment of the requirements for
the degree of Doctor of Education, Nova University

Volume II

Fairfield, California Cluster
Daniel Muller, Ph. D., Coordinator

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EXCERPT FROM THE FINAL REPORT OF THE MARIN COUNTY GRAND JURY, 1973-74

It is recommended that:

16. The Board of Supervisors direct the Marin Transit District to study the feasibility of incorporating transportation of public school students within the proposed expanded intra-county bus system.

17. The County Schools Office and the school districts in urban areas consider consolidating elements of public school transportation systems, especially dispatch, storage, maintenance, and capital investment.

This committee initiated a three-phase study of the potential costs and benefits of combining the separate bus systems of the various county school districts with the Golden Gate Bridge, Highway and Transportation District (GGBHTD). The first phase examined the potential for providing public school transportation service with existing GGBHTD buses and drivers. The second phase assumed GGBHTD would acquire necessary additional equipment and drivers to replace the current school service. Both of these studies resulted in unfavorable conclusions; the proposed system was either not feasible or too costly.

The objective of the third phase was the potential benefits of an expanded intra-county system that would provide transportation for all public schools except those operated by the County Schools Office and small isolated school districts. Required data could not be obtained or developed in time to allow the completion of this most important phase of the study during the tenure of the 1973-74 Grand Jury.

Potential intra-county passengers could be doubled by including public school students. Most school officials expressed keen interest in this possible solution to their transportation problem.

This committee wishes to acknowledge the outstanding cooperation and support of the County Schools Office and all school districts in the conduct of this study.

Analysis of California Education Code Regarding School Transportation

1. Governing Board of a school district may provide pupil transportation. (E. C. 16801)

2. Governing Board of any school district may contract for County Superintendent of Schools to provide pupil transportation. (E. C. 16801. 5)

   Example: Nevada County Superintendent of Schools
   Mr. Edward Fellersen, Superintendent
   Grass Valley, California Tel: (916) 265-2461

   Practice: Separate school districts contract with County for pupil transportation.

   Buses remain in title of separate school district but are operated, serviced and maintained by County Superintendent. Under this system, school district replacing bus qualifies for replacement allowances.

   School districts pay County Superintendent contract fee.

   Qualifying school districts continue to submit transportation report to state for purpose of reimbursement.

3. Governing Board of any school district and/or County Superintendent of Schools may contract for transportation of pupils with a municipally owned transit system. (E. C. 16803. 1)

   Example: Sacramento Regional Transit - Sacramento City Unified

   Practice: Governing Board requires parents or guardians of all or some of the pupils transported to pay a portion of the cost of such transportation in an amount determined by the Board. No charge may be made for handicapped children. Sacramento City Unified pays a set annual amount for such pupil transportation.

   Added Comment: School districts could issue tickets to students as a means of determining number of students being transported who qualify (mileage wise) for purposes of reporting transportation expenditures to state.

K-3	3/4 mile minimum	requirement for reimbursement
4-8	1 mile minimum	
9-12	2 miles minimum	

EDUCATION CODE SECTIONS PERTAINING TO PUPIL TRANSPORTATION BY MUNICIPALLY OWNED TRANSIT SYSTEM

E. C. 16801 -----The governing board may purchase or rent and provide for the upkeep, care, and operation of vehicles, or may contract and pay for the transportation of pupils to and from school by common carrier or municipally owned transit system, or may contract with and pay reasonable private parties for transportation.

E. C. 16801 -----the term "municipally owned transit system"----- means a transit system owned by a city, or by a district created under Part I (commencing with Section 24501 of Division 10 of the Public Utilities Code.)

E. C. 16803. 1 When the governing board provides for the transportation of pupils to and from school by contract with a common carrier, municipally owned transit system, or responsible private party, the governing board may require the parents or guardians of all or some of the pupils transported to pay a portion of the cost of such transportation in an amount determined by the board. The amount determined by the board shall be no greater than that paid for transportation on a common carrier or municipally owned transit system by other pupils in the district who do not use the transportation provided by the contract of the district. No charge under this section shall be made for the transportation of handicapped children.

E. C. 16851 A school bus is defined as--------

(a) ---

(b) ---

(c) ---

(d) A motor vehicle operated by a common carrier, or by and under exclusive jurisdiction of a publicly owned transit system, on scheduled runs but not used exclusively for the transportation of school pupils.

(e) A motor vehicle operated---by and under the exclusive jurisdiction of a publicly owned transit system,----- and used under a contractual agreement to transport pupils to and from school activities but not used regularly to transport pupils to and from a public or private school.

SM ERC

EDUCATIONAL RESOURCES CENTER

333 Main Street - Redwood City, California 94063 - 415 364-5600

F. Curtis May
Coordinating Librarian

Katherine Clay
Information Specialist

Marcia B. Garman
Research Supervisor

FRANK W. MATTAS
Administrative Director

August 14, 1974

Mr. Robert E. Spain
Assistant Superintendent
Marin County Superintendent of Schools Office
201 Tamal Vista Blvd.
Corte Madera, California 94925

RE: Search Request on Bus Transportation - Alternatives

Dear Mr. Spain:

I ran a computer search on this topic and found nothing whatever on federal programs, federal legislation, laws, or policy and the use of bus transportation for school children. Neither, as a matter of fact, did I find anything at all on the use of public facilities for school transportation. So I consulted our Director, Frank Mattas, who suggested that I call Joe Ash in San Francisco City Schools.

Mr. Ash told me that there had been a proposal to use public bus transportation for secondary school students in San Francisco, but that it was deemed too expensive, and the idea was abandoned.

I am enclosing a document from our Fugitive Information Data Organizer (FIDO) on the subject of voluntary transportation - a report of a program in Los Angeles. I have checked through Education Index, as well as our usual sources, and regret to say that I have come out empty handed. I would add, however, that ERIC is usually several months behind in its citations, due to the whole accession process. I will be happy to check for you again at the next update, and send you news of the result.

In the meanwhile, I would suggest that you might try correspondence with the urban education centers in the state - Los Angeles, Sacramento, and so on. I regret that I cannot be of further assistance at this time, and I hope that you will not hesitate to contact SMERC for information in the future. Thank you.

Sincerely,

Karen C. Cole

Karen C. Cole
Education Research Assistant

Enc: ID 002 804

SAN MATEO COUNTY OFFICE OF EDUCATION

Tarta

419-243-1241

TOLEDO AREA REGIONAL TRANSIT AUTHORITY
1127 West Central Avenue • P.O. Box 4702 • Toledo, Ohio 43620

Office of
CHARLES F. WHITTEN
GENERAL MANAGER

RECEIVED
AUG 2 1974
MARIN COUNTY
TRANSIT DISTRICT

July 29, 1974

Mr. Robert L. Harrison
Assistant General Manager
Marin County District
Civic Center Room 304-C
San Rafael, California 94903

Dear Mr. Harrison:

In response to your recent telephone call concerning TARTA's transportation program with the Toledo Board of Education, I will, in this letter, attempt to describe the high-lights only.

The steps necessary to implement such a system in any metropolitan area can only be determined after a feasibility study concerning present routing, equipment requirements and funding sources.

The system operated by TARTA will enter its third school year in 1974-75 and has been successful not only for the Transit Authority, but for the Board of Education as well, and is based on a contract between TARTA and the Board of Education that specifies the following:

1. Ohio law stipulates that each student living a mile or more from the school attended is eligible for state transportation reimbursement currently at $42 per school year subject to the approval of the local board of education making such transportation available.

2. The Board of Education accepts the responsibility for eligibility requirements, for printing and laminating the passes, and is the receiving agent of state monies that are paid to TARTA.

3. TARTA is responsible for providing total transportation for all students living within the boundaries of the Toledo Board of Education. Currently some 20,000 students are serviced each school day, aggregating 40,000 rides.

4. The passes are valid on school days only as determined by the Board of Education (180).

5. The Transit Authority and the Board of Education each designate a liaison' person to cope with the day-to-day problems in such a system.

6. Reimbursement to the Authority is on a monthly basis through a billing and validating process worked out between the agencies.

7. During the school day there is no time restrictions or ride restrictions on students involved. This agreement, in my opinion, serves a dual purpose. Whereas, a whole generation of young people are totally uninformed with mass transit, by allowing this latitude in the pass usage, young citizens in this country, who will be the supporting citizens of the future, are becoming involved with mass transit. From the Board of Education's view point, the flexibility in allowing students to participate in athletic events, extracurricular activities and, in fact, work-school activities has been extremely successful.

8. As you know, under Standard 17 of the DOT, school buses must conform to certain markings, color, etc. The system operated in Toledo is for all potential riders, and is confined to route service only and does not come under the aforementioned Standard 17 ramifications.

In my opinion, the ultimate marketing program any transportation system can have is usage by the citizens who support it. With the school pass system we have total usage of the TARTA system.

In order to make state funding available for mass transit carrying students, it was necessary to amend the Ohio Revised Code to include mass transit. This was done in 1971 by the Ohio Public Transit Association. On the basis that mass transit is under public ownership being partially supported by direct taxation on a local basis and by indirect taxation on a federal basis adequate passenger volumes must be obtained subject to these tax expenditures. And whereas school bus operations are totally supported through state and local taxation and in most instances parallel the same service area as transit systems, especially in metropolitan areas, by combining student transportation with mass transit, a more prudent use of tax monies is experienced.

Very truly yours,

Charles F. Whitten
General Manager

CFW:dlh

ERT dial-a-bus
288-5101

October 22, 1974

Durr
Mrs. Jane S. ~~[illegible]~~
470 Cascade Drive
Fairfax, Calif. 94930

Dear Mrs. ~~[illegible]~~: Durr

Thank you for your letter of October 14, 1974 inquiring about our Pert Dial-a-Bus system. Unfortunately, our service to various schools in our service area is limited and is not a solution to the high cost of school busing. We provide Home-to-School service only for those students who live within 1&1/2 miles of their schools and are not therefore eligible for regular school bus service.

A scheduled bus service does co-exist with our Dial-a-Bus system. The savings you heard about via Television News can be attributed to the cutting back on parts of the heavy losing fixed route system, and being replaced with Dial-a-Bus service.

The following data and enclosed material will hopefully answer the questions raised in your letter:

''' Ridership is presently about 600 passengers a day.
''' Population is presently about 65,000 people.
''' School children bused per day is presently about 65.
''' No school hours were altered for this service.
''' Our Home-to-School service operates after our morning rush hour and before our evening rush hour.

If we can be of further service to you in this matter, please do not hesitate to advise.

Sincerely,

Stephen W. Warren
Pert Administrator

SWW:cmr
Enc.

1372 EAST MAIN STREET. ROCHESTER. N.Y. 14609

home-to-school (also day care + Nursery School) (and back again!)

PERT dial-a-bus will offer special home-to-school service for many students in the PERT dial-a-bus service area for the 1973-74 school year.

Here's how it works:

If your child (or children) is not eligible for regular school bus service, a new PERT dial-a-bus will provide door-step to door-step service to and from school every school day.

Your child (or children) may qualify for home-to-school service if:

- The school day starts AFTER 8:15 a.m. and ends BEFORE 3:00 p.m.
- The student attends one of the schools serviced by dial-a-bus (If you receive this notice in the mail, your name and address has been provided by your school system or PTA and your children ARE eligible for home-to-school service!)

THE COST

- $5.00 per week (ten trips) when you make advance reservations for a week's service.
- 65 cents per trip (one way) when you call before 2 p.m. the preceding day and make reservations for the following day.
- 25 cents (each way) for each additional family member making the identical trip.

WHAT TO DO

Simply call PERT dial-a-bus at 288-3181 for complete information and reservations or mail the attached card (no postage necessary).

NOTE!

One-way service either to or from school is also available on an advance reservation basis. Dial 288-3181 for complete information.

Student's full name ____________________

Address ____________________

Telephone ________ School ________ Grade ________

Will there be more than one student making identical trip? ________

If so, how many members of your family will there be ________

What DATE would you like service to begin? ________

What time does your student's school day begin? ________ end? ________

Signature of parent ____________________

BEST COPY AVAILABLE

what

PERT — PERS[illegible] new dimension in public transportation. It is demand responsive service.

Anyone within the PERT Dial-A-Bus service area simply telephones the PERT dispatcher and a specially designed 25-passenger bus will pick up that passenger at his doorstep and take him anywhere within the PERT Dial-A-Bus service area between 8:15 a.m. and 5:30 p.m. weekdays.

PERT Dial-A-Bus also will connect with Regional Transit Service routes 1 (Park-Lake) and 10 (Dewey Avenue) so that passengers may travel anywhere within the RTS operating area.

Basic Dial-A-Bus service is now available weekdays from 8:15 a.m. until 5:30 p.m.

Two types of "peak hour" service also is available:

- Home-to-Work for Kodak Park men and women who work the "A" trick and
- Feed-A-Bus Service for people who want to connect with regular RTS routes 1, 10 and/or 15.

These two services may be ordered by the week or by the day in advance (just dial 288-3181). And with advance reservation, the cost to you is reduced.

This "peak hour" subscription service operates from 6 a.m. until 8 a.m. and from 3 p.m. to 6 p.m. weekdays.

In addition, subscription service for some school children for whom school bus service is not available, is planned for the fall.

PERT Dial-A-Buses will of course be air conditioned in the summer and cozily heated in the winter.

who

PERT was devised by, and is a project of, the Rochester-Genesee Regional Transportation Authority which will pay capital costs. PERT is operated by Regional Transit Service.

fares

Peak Hour Service operates as home-to-work and feed-a-bus between 6 and 8 a.m. and 3 and 6 p.m. Dial-A-Bus passengers may be picked up anytime between 8:15 a.m. and 5:30 p.m. weekdays.

PEAK HOUR SERVICE FARES

Home to work Kodak Park subscription Rate $7.00 per week (10 trips).

Daily Rate 80¢ per one-way trip.*

Feed-a-Bus Service Subscription Rate $7.[illegible] per week (10 trips) includes transfers.

Daily Rate 85¢ per one-way trip (includes transfers).*

Home to School Service subscription rate $5.00 per week (10 trips).

Daily Rate 65¢ per one-way trip.*

*—Reservations for daily service must be made before 2 p.m. the preceding day.

DIAL-A-BUS SERVICE FARES

Base Fare $1.00 — 25¢ for each additional family member making the identical trip.

Fare with transfer to RTS route: $1.05 per one-way trip (includes transfer); 30¢ for each additional family member making the identical trip.

how

When a call comes to PERT, a dispatcher immediately notifies the nearest PERT Dial-A-Bus and routes the driver to the pickup point. The driver then is directed to the passenger's destination over the shortest possible route, usually touching other pickup and destination points along the way.

SUMMARY

BALTRAN STUDY
San Rafael, California

June 8, 1972

The Balanced Transportation Program is a unified effort by the cities and the County of Marin and the State Division of Highways to mesh long-range land use planning with transportation planning on a systematic county-wide basis. This includes considering transit as part of the same system as highways. Up to now urban development, highways, and transit were planned separately without full regard for the impact each decision in one area had on the other two. As the name of the program implies, the objective is to strike a balance between transit and highway systems that meets the future travel demands but does not damage the special environmental qualities of Marin.

Phase I has been an assessment of how the adopted community general plans for the future match up with the transportation networks that these same local jurisdictions propose. Generally, local plans reflect too much land development proposed to be served by too little transportation. Estimates of the level of transit patronage that would handle the projected overflow from the proposed highway system were an important result of the Phase I work.

Some important findings arising from this evaluation of local plans were:

a. Travel demand will grow about 20% faster than the county's population to a level 3-1/2 times today's trip-making
b. Trips to Sonoma County and North Bay locations will surpass those to San Francisco at some point before 2020.
c. Marin will have more home to work travel within the county than at present.

JOINT EXERCISE OF POWERS AGREEMENT
BETWEEN
MARIN COUNTY SUPERINTENDENT OF SCHOOLS
AND
MARIN COUNTY TRANSIT DISTRICT

THIS AGREEMENT, entered into this 23rd day of December, 1974, by and between the MARIN COUNTY SUPERINTENDENT OF SCHOOLS (hereinafter referred to as COUNTY SCHOOLS) and the MARIN COUNTY TRANSIT DISTRICT (hereinafter referred to as TRANSIT DISTRICT).

WITNESSETH

WHEREAS, the aforementioned are public agencies created by the laws of the State of California and are empowered by law to enter into a Joint Exercise of Powers Agreement for the purposes herein set forth; and,

WHEREAS, transportation services represent a significant share of the operation budgets of all school districts in Marin County; and,

WHEREAS, the cost of transportation services is increasing to a point where it represents a serious burden for many school districts and is projected to grow even further, thereby becoming a major problem for all districts in the future; and,

WHEREAS, the COUNTY SCHOOLS are concerned with finding a solution to the ever-increasing financial burden which transportation is placing on the school system; and,

WHEREAS, the TRANSIT DISTRICT is empowered to provide local transportation services within Marin County; and,

WHEREAS, school students are currently an important segment of the users of the TRANSIT DISTRICT'S services; and,

WHEREAS, there may be net public benefit in the provision of school transportation by increasing the scale of school transportation services either by consolidation of separate school district operations or by joint provision of services by the school districts and the TRANSIT DISTRICT: and,

WHEREAS, the COUNTY SCHOOLS and the TRANSIT DISTRICT have indicated they will commit funds to study the problems of financing school transportation.

NOW, THEREFORE, the parties hereto agree as follows:

1. OBJECTIVE

   The purpose of this agreement is to provide a means for carrying out the defined project.

2. DEFINITIONS

   A. "Project" - The feasibility study of consolidating school bus services and/or combining school bus operations with public transit. The workplan of the project is attached as Schedule A.

B. "Technical Staff's Advisory Committee" - A committee (hereinafter referred to as TECHNICAL COMMITTEE) consisting of one staff member from each of the following agencies:

Marin County Superintendent of Schools
Tamalpais Union High School District
San Rafael High School District
Novato Unified School District
Shoreline Unified School District
Marin Community College District
Marin County Transit District

Each of the above agencies shall have full voting status on the TECHNICAL COMMITTEE. The TECHNICAL COMMITTEE may augment its membership by including representatives from agencies such as:

Elementary School Districts of Marin County
California State Department of Education
Metropolitan Transportation Commission
Golden Gate Bridge, Highway, and Transportation District

which representatives shall not have voting rights.

3. METHOD TO ACCOMPLISH OBJECTIVE

The project shall be accomplished by the Marin County Schools Office and by contract for consultant services with the firm of J.H.K. and Associates of San Francisco.

4. PROJECT COST AND PAYMENT PROCEDURE

The project is estimated to cost a total of $25,000. The COUNTY SCHOOLS shall pay $10,000 to the TRANSIT DISTRICT upon execution of this agreement by both parties hereto. The TRANSIT DISTRICT shall pay the balance of the cost of the project not to exceed a contribution of $15,000. The TRANSIT DISTRICT shall contract with the firm of J.H.K. and Associates of San Francisco to provide required consultant services at a cost not to exceed $25,000 with the framework of Schedule B. The TRANSIT DISTRICT will be responsible to receive consultant billings and make payments for consultant services on a monthly basis.

5. RESPONSIBILITIES OF THE TECHNICAL STAFF'S ADVISORY COMMITTEE

The TECHNICAL COMMITTEE will be responsible to:

A. Determine specific technical tasks to be undertaken.

B. Receive progress reports.

C. Report to member agencies on progress of study.

D. Make specific recommendations on performance of technical work to member agencies.

E. Meet regularly and review proposals and tasks completed to date.

6. TERMINATION

This agreement shall remain in effect for the period of time necessary to complete the PROJECT unless terminated prior thereto by agreement of COUNTY SCHOOLS AND TRANSIT DISTRICT.

MARIN COUNTY SUPERINTENDENT OF SCHOOLS

County Superintendent of Schools

MARIN COUNTY TRANSIT DISTRICT

Bob Roumiguiere
Chairman, Board of Directors

R. V.
County Counsel

SCHEDULE A

WORKPLAN FOR PROJECT

1. Survey of School District Transportation
2. Analysis of System Characteristics
3. Analysis of Administrative Characteristics
4. Examine Current Public Transit Utilization
5. Conduct Transit Needs Analysis
6. Identify Degree and Type of Consolidation or Combination with Public Transit
7. Select Area for Pilot Demonstration
8. Determine Operating Characteristics and Administrative Procedures for Pilot Demonstration
9. Develop Evaluation Process for Pilot Demonstration

SCHEDULE B

WORKPLAN FOR PROJECT

J.H.K. and Associates agrees to furnish all assistance to the project, such as salaries, typing, printing, and mileage, at a fee of $200 per day.

1.

1. Survey of School District Transportation - Assist Marin County Schools Office to prepare questionnaire and interview school district personnel. 10 days

2. Analysis of System Characteristics - Assist Marin County Schools Office

   to analyze data collected. 5 days

3. Analysis of Administrative Characteristics - Assist Marin County Schools Office to analyze data collected. 5 days

4. Examine Current Public Transit Utilization and Prepare a Report to be Submitted to the TAC - This is the complete responsibility of the consultant firm. 20 days

5. Conduct a Transit Needs Analysis and Prepare a Report to be Submitted to the TAC - This is the complete responsibility of the consultant firm. 20 days

6. Identify Degree and Type of Consolidation or Combination with Public Transit - Assist the Marin County Schools Office in developing possible alternatives for consolidation or combination of services. 10 days

7. Select Area for Pilot Demonstration - Assist Marin County Schools Office in selecting area for pilot demonstration. 2 days

8. Determine Operating Characteristics and Administrative Procedures for Pilot Demonstration - Assist Marin County Schools Office in developing plan. 20 days

9. Develop Evaluation Process for Pilot Demonstration - Assist Marin County Schools Office to develop evaluation process. 20 days

10. Investigate Possible Private or Federal Grant to Partially Fund Pilot Project - Assist Marin County Schools Office in this investigation. 10 days

Estimated Cost

Estimated days	122 at $200 per day	$24,400
Reserve days	3 at $200 per day	600
	Estimated Total	$25,000

TECHNICAL ADVISORY COMMITTEE MEETING

January 7, 1975

Voting Members

Dale A. Fleming	Marin Community College District
Robert E. Spain	Marin County Schools Office
Bob Harrison	Marin County Transit District
Eugene DeBrecht	Novato Unified School District
John Scoggin	San Rafael High School District
Ken Barnes	Shoreline Unified School District
Frank Cassou	Tamalpais Union High School District

Agency Representatives on TAC

John J. Douglas	San Rafael High School District
Jane Durr	Fairfax School District
Joe Goff	Dixie School District
Gene Hendsch	Kentfield School District
Robert W. Hubenette	J.H.K. & Associates
Carroll Killingsworth	Mill Valley School District
Stan McDougall	State Department of Education
Keith McPherson	San Anselmo School District
Elmer McVerry	Golden Gate Bridge, Highway, and Transportation District
Bruce Richard	Golden Gate Bridge, Highway, and Transportation District
Gil Slusher	Larkspur School District
Gene Turtle	Marin County Schools Office
William B. Welch	J.H.K. & Associates
Peggy Woodring	Metropolitan Transportation Commission

PART A

School District Transportation Survey Data

District: ______________________________

A. School Hours

School	Grades	Start	Dismiss

B. Bus Operations

1. Route Location (Provide map of bus routes)

2. Schedules for Home-to-School Transportation
(Fill out attached inventory sheet)

3. Do you furnish transportation other than between home and school?

	District Transportation	Charter Service
Number of times per semester:		

4. System Reliability
Total in-service breakdowns per year:
Reserve vehicles:

5. Schedule Adherence
Average per month late arrivals of buses:*
Major reasons for late arrivals (e.g., weather, traffic, breakdowns, unfamiliarity with route):

---

*Arrivals after first bell.

Inventory of Home-to-School Transportation Schedules

		AM						PM					
Bus No.	Route No.	Time of first Pick-up	Location of first Pick-up	Time of last Discharge	Route Length (Miles)	No. of Stops	Average Daily Students	Time of first Pick-up	Time of last Discharge	Location of last Discharge	Route Length (Miles)	No. of Stops	Averag Daily Studen

6. Special Operational Considerations

a. Access Problems (Terrain, street configurations, etc.--describe):

b. Student Conduct (Disciplinary problems, vandalism, etc.):

c. Driver Performance (Student relations, chargeable accidents or incidents, method of evaluating driver performance, etc.):

d. Special Education Students. Does the District provide its own transportation for Special Education students?

Number of students served:

Number of vehicles assigned:

C. Bus Operating Costs (Breakdown of Line E, Schedule 1, State Reimbursement Form J-141, if filed)

Item	1973-74 Cost
Fuel, Oil, Lube Materials	
Tires and Tubes	
Parts and Equipment	
Cost of Repairs (if contracted out)	
TOTAL	

D. Capital Equipment

1. Buses

					COST OF BUS		
		Gas or	Year First	Original	LEASE		
Unit No.	Capacity	Diesel	Sold/Leased	Cost	No. Years	Yearly Fee	Amortization

2. Maintenance Facilities

a. Fixed Facilities

Location:

Description (Number of pits, size, etc.):

Original Cost:

Replacement Cost:

Are these facilities used to service vehicles other than school buses?

b. Tools and Equipment:
(Summary description)

Original Cost:

Present Value:

c. Bus Storage Facilities:
(Description of Facility)

Are these facilities used to store vehicles other than school buses?

E. Routing and Scheduling

1. Planning

a. Responsible person (name):

b. Approximate time devoted annually to planning (person-days):

c. Planning procedure (e.g., size and location of student population, determination of routes, location of stops, route and schedule adjustments):

2. Dispatching

a. Responsible person (name):

b. Dispatching procedure (e.g., inspection of vehicles, special events, etc.):

F. Transportation Staff

Staff Members	No. of Staff Members	Average Hours per Week Devoted to School Bus Operations	Annual Cost
Planning and Administration			
Maintenance Personnel			
Drivers			
Full Time			
Back Up			

Use of Training Programs for Drivers:

G. Non-school Bus Student Travel (Estimate number of students using each mode)

School	Grade	MODE			
		Walk to School	Driven to School	Drive to School (High School Only)	Use Golden Gate Transit

H. Current Operations (1974-75)

1. District Enrollment

School	Grades	Current Enrollment

2. Changes from 1973-74 Bus Operation

a. Additional Vehicles

Unit No.	Seats	Gas or Diesel	Cost of Bus	
			Original Cost	Lease Yearly Fee

316

b. Staff/Administrative Changes
(Describe)

c. Other Changes (Maintenance, storage, planning, etc.)

I. Planning Considerations

1. Anticipated Future Changes (capital equipment, staffing, administrative procedures, planning procedures)

PART B

School District Transportation Survey Interview

Background:

The overall purpose of the Marin School Transportation Study is to determine if there are benefits that would accrue from a consolidation of school bus operations and/or the combination of school bus operations with an intra-county public transit system. Specific study considerations are to:

- Identify the specific transportation needs of each of the school districts in Marin County.
- Determine whether a combined school and public transit system would serve the identified needs of both school and general public patrons to a greater degree than separate transportation systems.
- Determine whether consolidation within the school district or combination with public transit would be economically advantageous.

It is important that the needs and objectives of each school district be identified at the outset so that a systematic feasibility study can be undertaken. To accomplish this objective, an extensive survey of each school district will be conducted to develop information that will be used later to develop specific recommendations. This survey will be to obtain facts on the current district transportation operation, and to obtain an evaluation of both the present operation and possible alternatives such as those outlined above.

The survey of factual data on bus operations will be directed to district transportation supervisors. The evaluative portion of the survey will be directed to both transportation supervisors and to members of the school board. In the case of High School Districts, a representative of the student body will be included also.

Survey questionnaires will be sent to transportation supervisors to fill in factual data on bus operations. The evaluative portion of the survey will be carried out through a personal interview process so that a thorough discussion of important issues and ideas may take place. Interviews will be set up by the Technical Advisory Committee which includes representatives from most school districts in the County. The interview will be conducted by the consultant, JHK & Associates.

Issues for Discussion

To make the interviews as productive as possible, the following items and issues are suggested as points of departure. While these issues are not exhaustive, they should serve to bring out some of the more obvious points to be considered in evaluating present and future transportation operations.

- Effectiveness of Current District Transportation Operation

  How effective is the system in handling the transportation needs of the student population? What needs are unmet by the present system? Is there any dissatisfaction voiced by parents over the system? By students? By the community at large? Can the present system accommodate special activities satisfactorily? Can school schedule changes be accommodated easily? Is the system effective in terms of the annual cost incurred? Can schedule and route planning functions be carried out more efficiently? If transportation services are contracted out, does the contractor perform effectively? What changes could be made in operations or administration to improve the system? What will be the impact of future changes in student enrollment on the effectiveness of the current transportation system?

- Consolidation of School District Transportation Operations

  Consolidation of transportation operations includes a range of alternative possibilities effecting vehicle fleets, operations, planning, and administration. Consolidation could take place on a small scale where a school district would share equipment resources with a neighboring district to handle special operation problems or would share planning and scheduling activities for combined routes and services. Or consolidation might take place on a large scale where all administrative and operational functions would be carried out at a centralized facility.

  Taking into account the broad range of possibilities that exist, What possible benefits do you see for your school district? What disadvantages do you foresee? How would it affect your district if planning functions were handled by another district or by a centralized planning staff? What are the implications of distributing the costs of a consolidated operation among the school districts? Would major policy changes have to be made by your district to consolidate bus operations? What specific opportunities do you see for consolidation as far as your own district is concerned (e.g., equipment, routes, schedules, planning, maintenance, administration)?

- Combination of School Transportation with Marin County Transit

  As with consolidation, combination of school transportation and public transit covers a wide range of alternatives.

Transportation programs could be designed to serve special transportation needs that neither school transportation nor public transit serve effectively now. Combination could be accomplished with only a few school districts in the County or it could be organized county-wide. Combination could be organized around the increased use of public transportation for school use or it might entail the sharing of equipment for joint school and general public transportation use providing that changes can be made in current state regulations regarding the use of school buses. Combination could involve the joint administration of a combined transportation system using existing staffs and facilities or it could involve a centralized operation with its own full-time staff or a staff provided by Marin County Transit District. As with the question of consolidation of school transportation services, the appropriate scale of combination depends on the identification of needs and the evaluation of benefits involved.

What advantages to your school district do you see in jointly providing school transportation and public transit? What disadvantages? What are the administrative implications to your district of jointly providing your own transportation and public transit to the student population? Planning implications? Financial implications (cost savings)? Would school board policies have to be changed to allow joint provision of school transportation? Do you anticipate any problems with student safety and/or the responsibility of drivers in public transit operations? What resources could your school district contribute to a jointly administered transportation system (equipment, part time personnel, facilities)? Could the sharing of costs and revenues in a joint transportation system be worked out equitably as far as your district is concerned?

Would the availability of transit induce students to use it for non-school purposes? Would high school students who now drive to school use transit if it were available? How would flexibility for special school activities or schedule changes be maintained in a combined system?

PERSONS INTERVIEWED

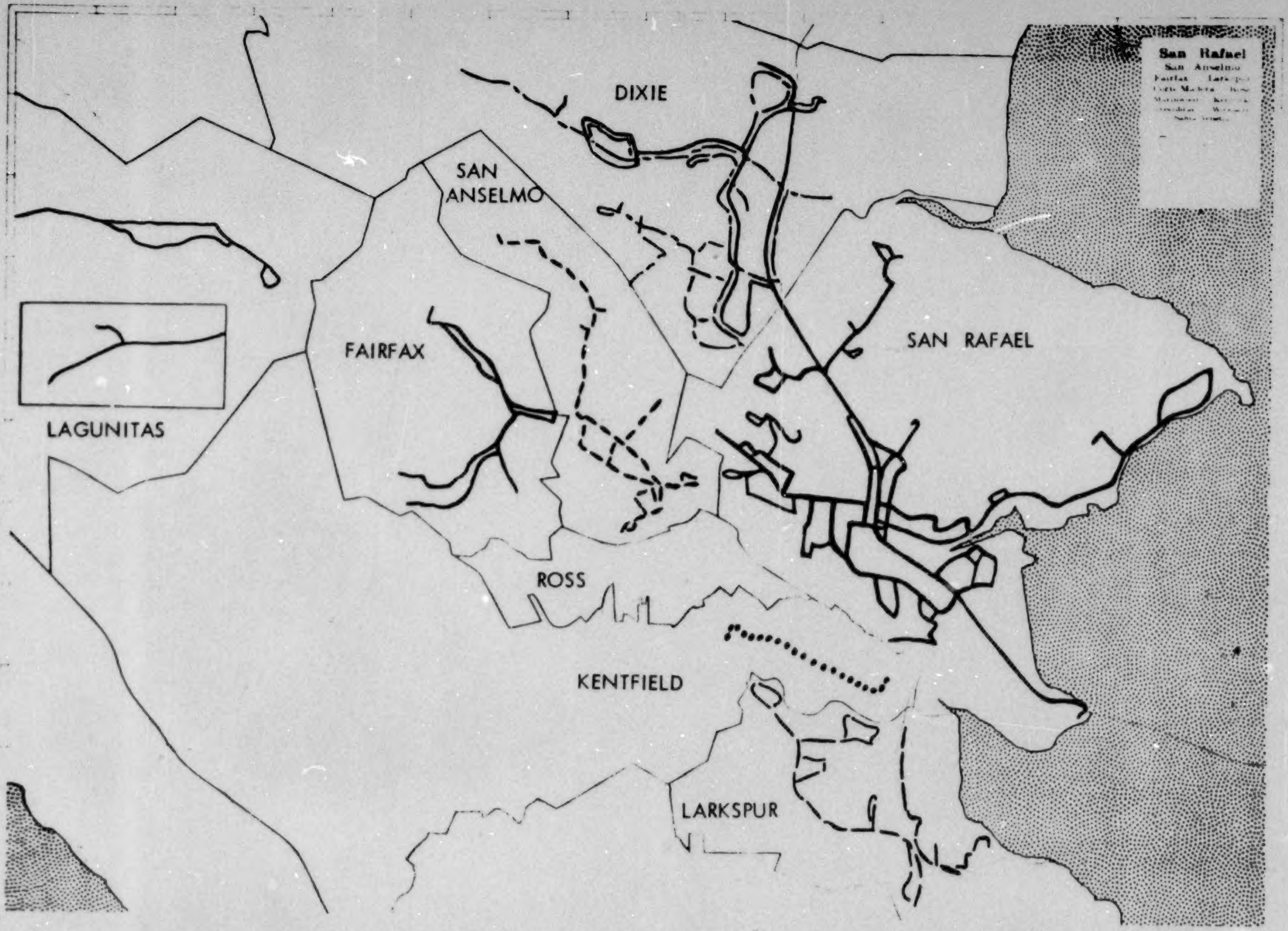
Bolinas-Stinson	Jay V. Papish, Transportation Supervisor Peter Weston, Board Member
Dixie	Joseph B. Goff, Business Manager Carol Kay Beckmann, Board Member
Fairfax	Mimi Zellers, Transportation Supervisor Tony Regan, Student Jane S. Durr, Board Member
Kentfield	Gene L. Hensch, Administrative Assistant Mrs. Win Setrakian, Board Member
Laguna Joint	Donald T. Moreda, Board Member
Lagunitas	Harry F. Roche, Superintendent Anna Mae Kendratieff, Business Manager Jacqueline Stoll, Bus Driver/Supervisor
Larkspur	Gilbert Slusher, Assistant Superintendent Shirley A. Walker, Board Member
Lincoln	Charles Spaletta, Board Member
Marin Community College District	Dale A. Fleming, Director of Planning Dr. John A. Grasham, Superintendent Frances Compton, Board Member Irwin P. Diamond, President, College of Marin Dr. Ernest H. Berg, President, Indian Valley Colleges Students
Marin County Schools	Gene Turtle, Administrative Assistant Glenna Wider, Director of Transportation
Mill Valley	Carroll Killingsworth, Business Manager Jack Eliot, Board Member
Nicasio	Darlene Dolcini, Board Member

PERSONS INTERVIEWED (Continued)

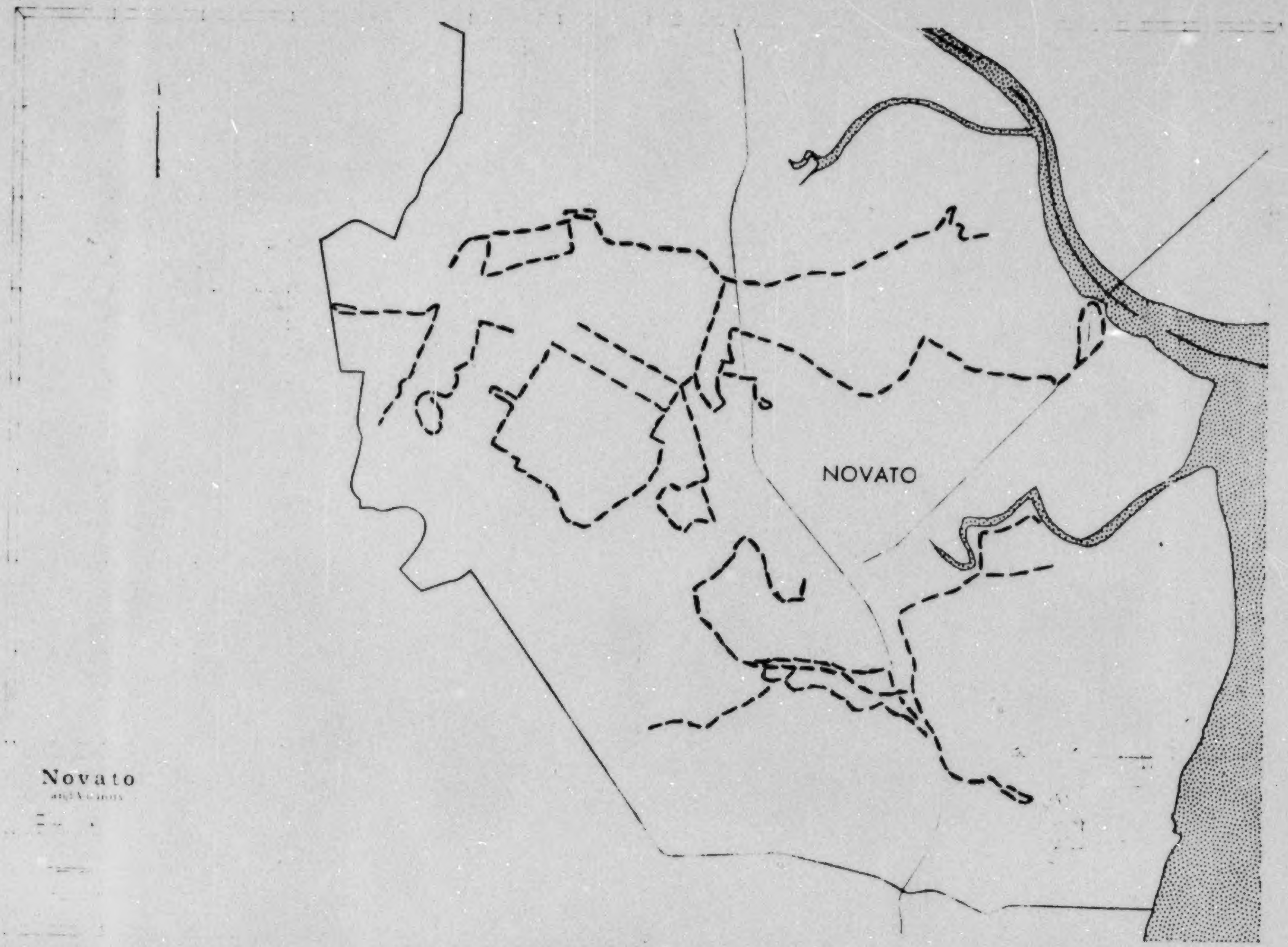
Novato Unified	Dr. Eugene F. DeBrecht, Business Manager Liz Mertel, Board Member Betty Machado, Board Member Students
Reed Union	Charles Condrotte, Business Manager Charles Patterson, Board Member
Ross	Sally Rakow, Board Member
San Anselmo	Keith C. MacPherson, Principal and Transportation Coordinator Gordon C. Sims, Supervisor, Buildings and Grounds Eugene E. Jacks, Board Member
San Rafael	John Scoggin, Business Manager John Douglas, Transportation Supervisor Diane Ellison, PTA Member Francis X. Kelly, Board Member Student
Sausalito	Donald W. Johnson, Superintendent Barbara S. Harris, Board Member Betty Times, Board Member James Morgan, Supervisor of Maintenance and Operations
Shoreline	Kenneth E. Barnes, Superintendent Roy V. Parks, Board Member Louise Passalacqua, Board Member Student
Tamalpais	Frank A. Cassou, Business Manager Lotte Schiller, Board Member
Union Joint	Eleanor Pomi, Board Member

* * *

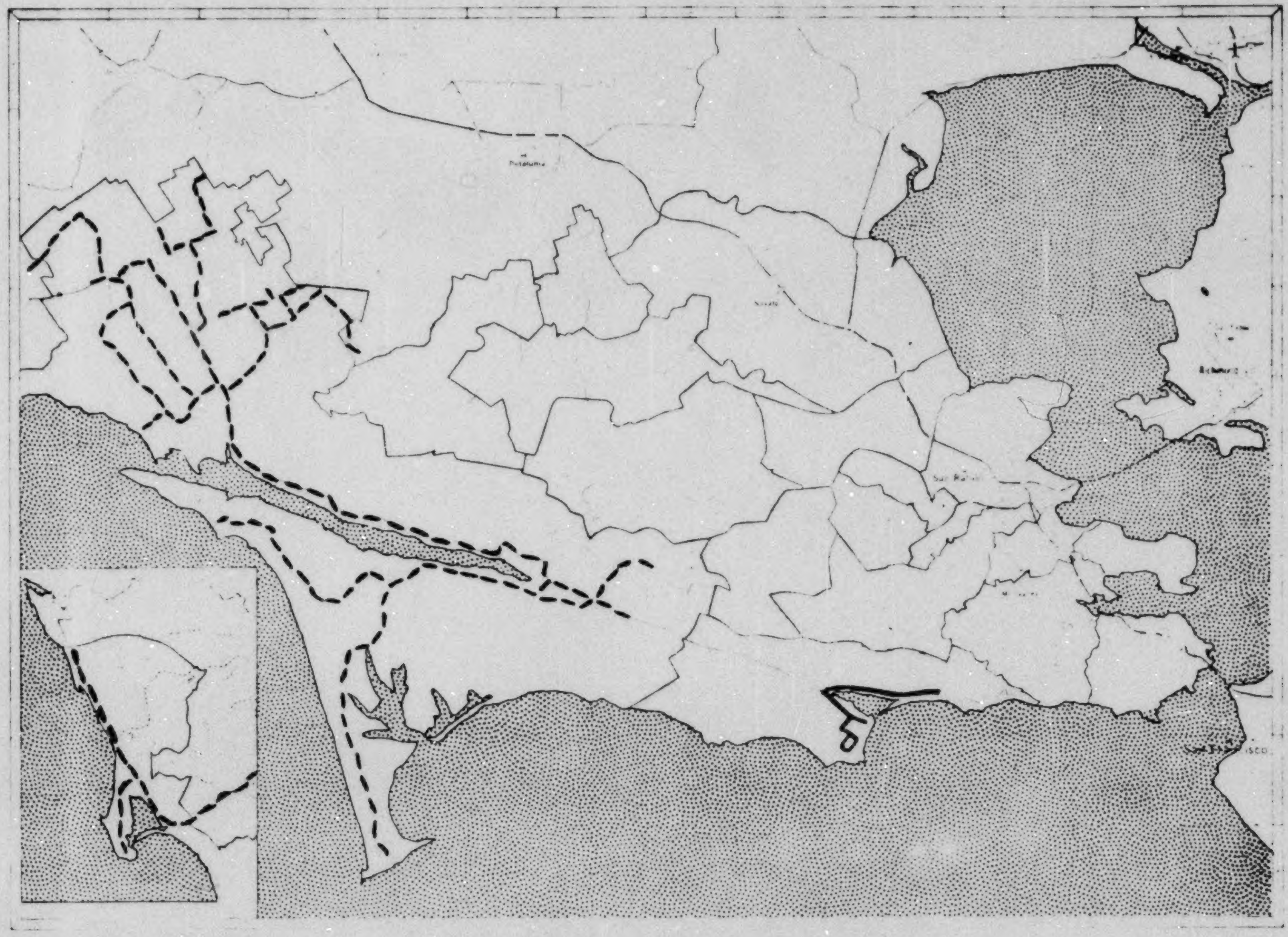
Mark IV School Bus Service	Alice Gardner, School Transportation Coordinator


San Rafael
San Anselmo
Fairfax Larkspur
Corte Madera Ross
DIXIE
SAN ANSELMO
FAIRFAX
LAGUNITAS
SAN RAFAEL
ROSS
KENTFIELD
LARKSPUR

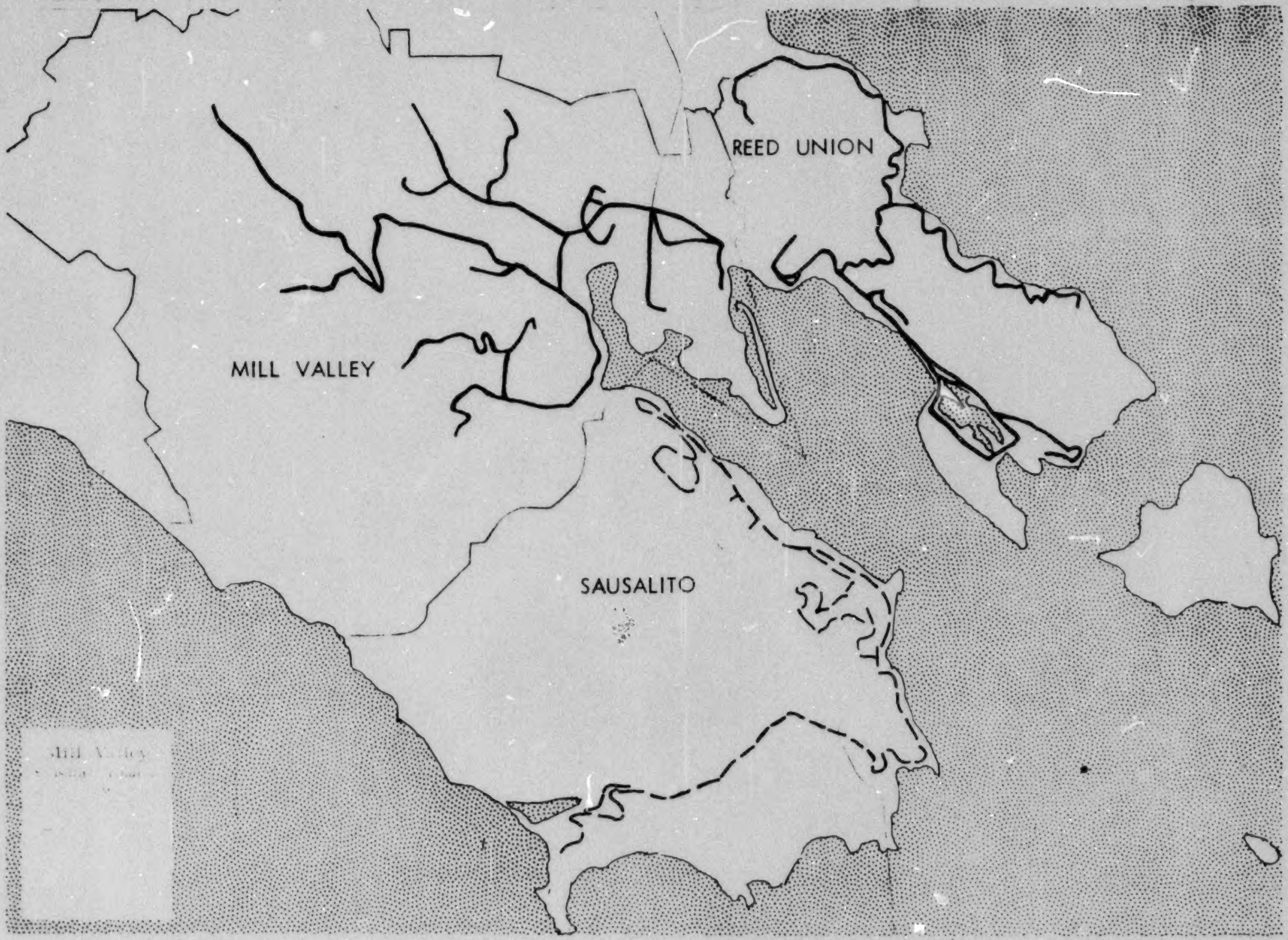
School District Bus Routes Central Marin County


NOVATO
Novato

School District Bus Routes Northern Marin County

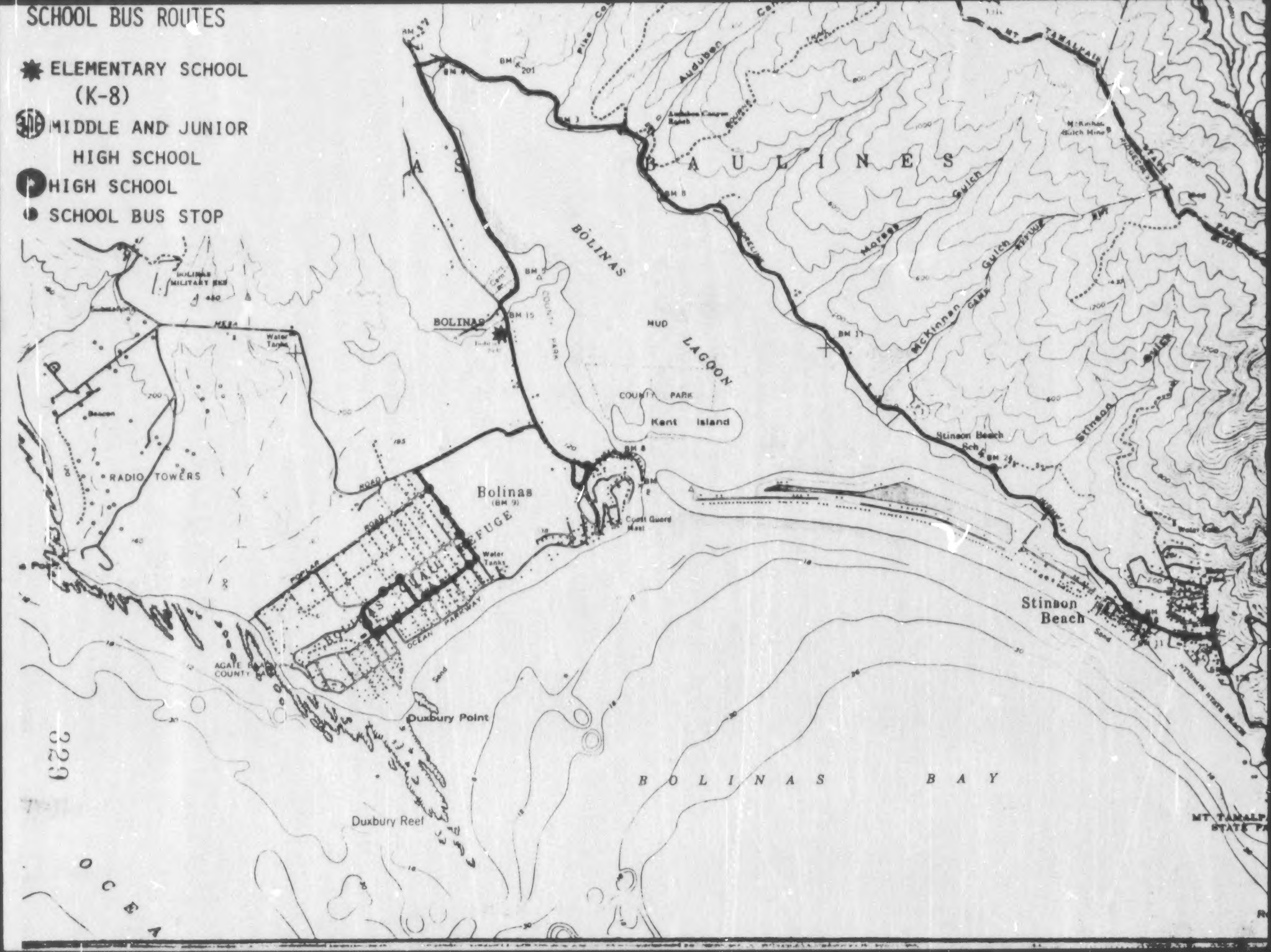


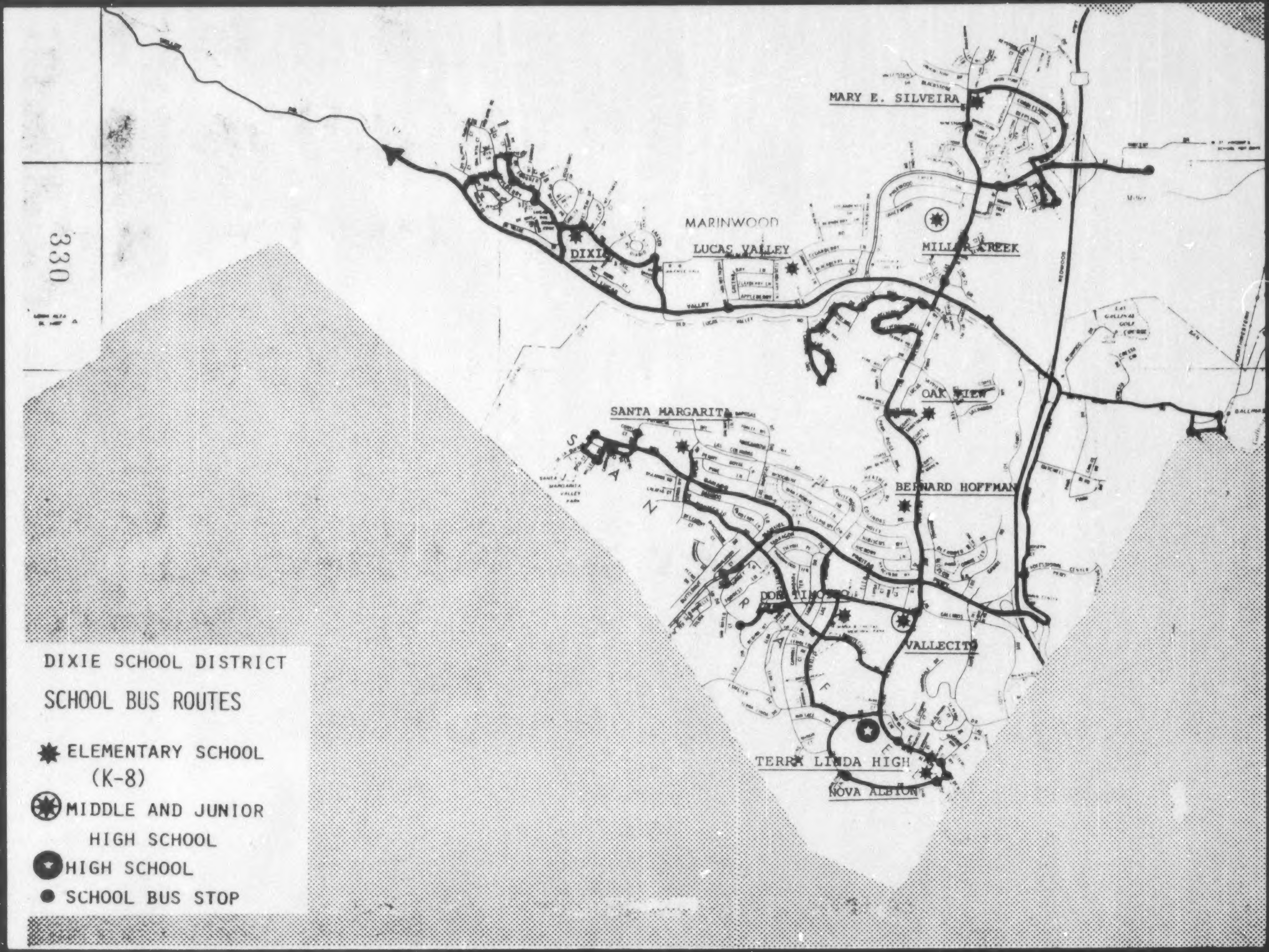
School District Bus Routes Western Marin County


REED UNION
MILL VALLEY
SAUSALITO

School District Bus Routes Southern Marin County

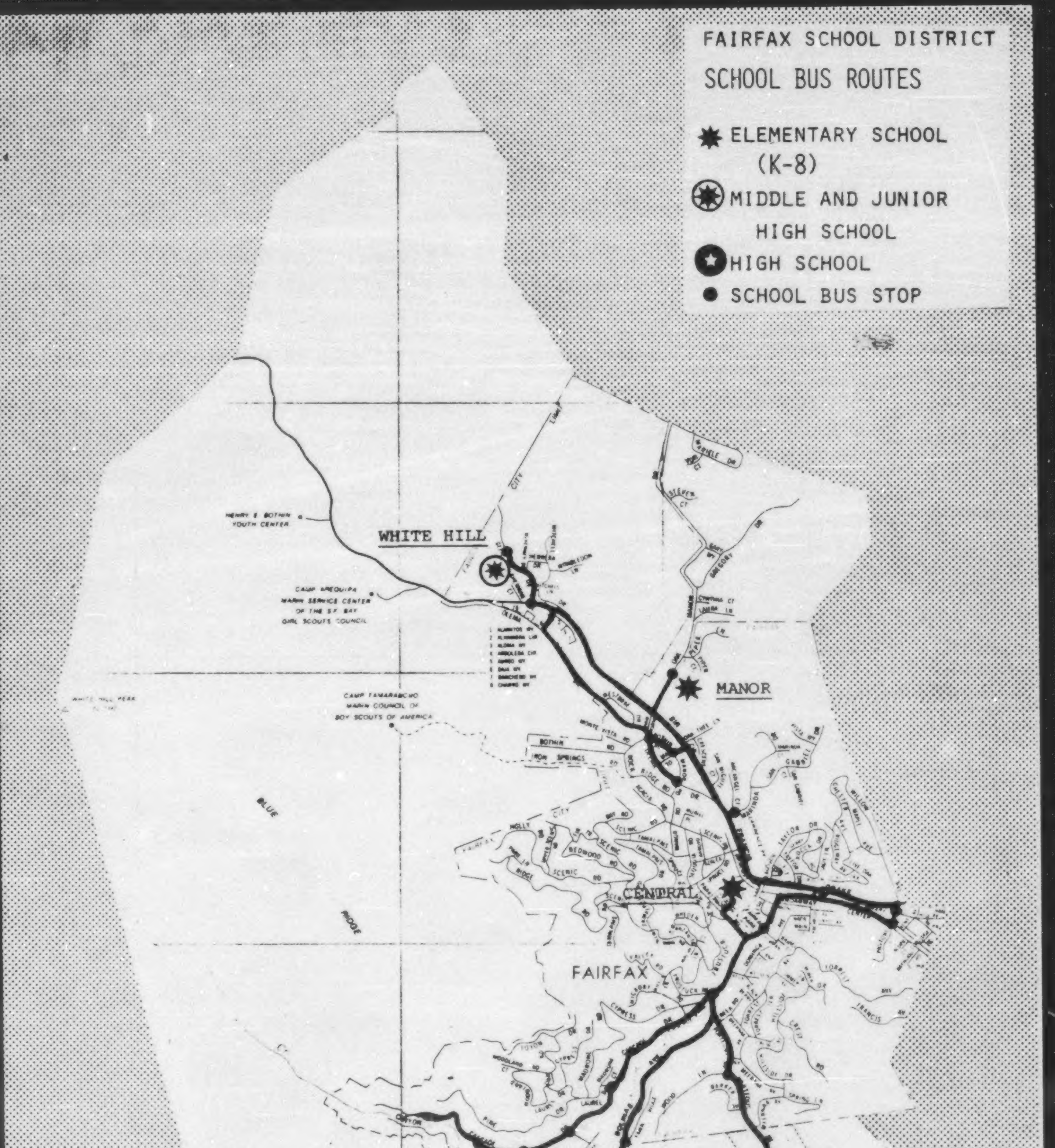
SCHOOL BUS ROUTES


✱ ELEMENTARY SCHOOL (K-8)
MIDDLE AND JUNIOR HIGH SCHOOL
HIGH SCHOOL
● SCHOOL BUS STOP
BOLINAS
Bolinas
(BM 9)
BOLINAS
MUD
LAGOON
COUNTY PARK
Kent Island
BAULINES
Audubon
Pike
Morses Gulch
McKinnon Gulch
Stinson Gulch
Stinson Beach Sch
Stinson Beach
BOLINAS BAY
OCEA
Duxbury Point
Duxbury Reef
AGATE COUNTY
RADIO TOWERS
BOLINAS MILITARY RES
Water Tank
Water Tanks
Coast Guard Mast
Beacon
OCEAN PARKWAY
MESA
REFUGE
Sand
MT TAMALPAIS
MT TAMALPAIS STATE PA
STINSON STATE BEACH


330
MARY E. SILVEIRA
MARINWOOD
LUCAS VALLEY
MILLER CREEK
DIXIE
OAK VIEW
SANTA MARGARITA
BERNARD HOFFMAN
DON TIMOTEO
VALLECITO
TERRA LINDA HIGH
NOVA ALBION
S A N R A F A E L
ELEMENTARY SCHOOL (K-8)
MIDDLE AND JUNIOR HIGH SCHOOL
HIGH SCHOOL
SCHOOL BUS STOP

DIXIE SCHOOL DISTRICT

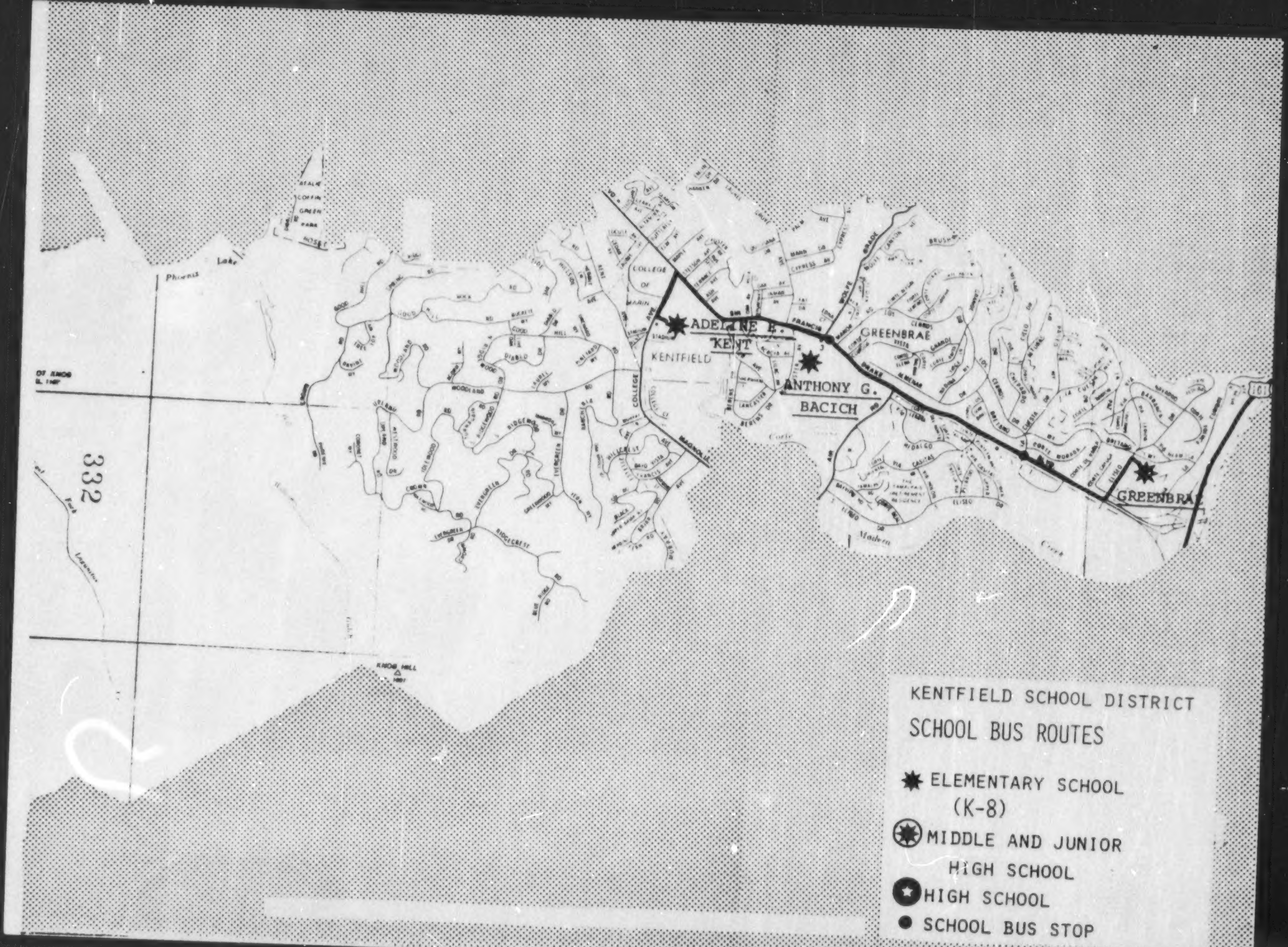
SCHOOL BUS ROUTES



FAIRFAX SCHOOL DISTRICT

SCHOOL BUS ROUTES

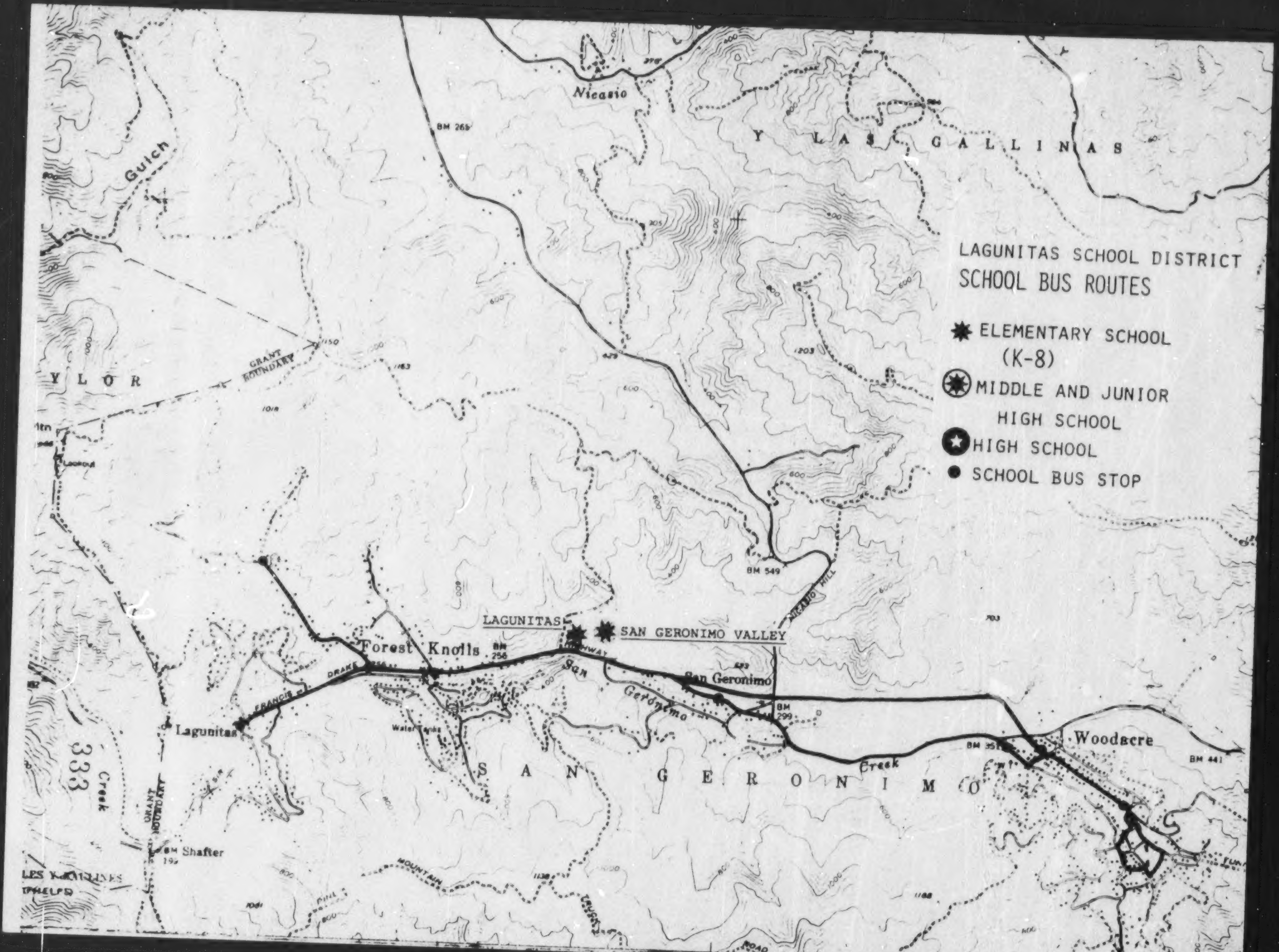
✱ ELEMENTARY SCHOOL (K-8)
MIDDLE AND JUNIOR HIGH SCHOOL
HIGH SCHOOL
● SCHOOL BUS STOP
WHITE HILL
MANOR
CENTRAL
FAIRFAX
DEER PARK
HENRY E. BOTHIN YOUTH CENTER
CAMP AREQUIPA MARIN SERVICE CENTER OF THE S.F. BAY GIRL SCOUTS COUNCIL
CAMP TAMARANCHO MARIN COUNCIL OF BOY SCOUTS OF AMERICA
BLUE
RIDGE
DEER PARK (CO PARK)
BOTHIN
IRON SPRINGS
SCENIC
REDWOOD
CANYON
FRANCIS



KENTFIELD SCHOOL DISTRICT

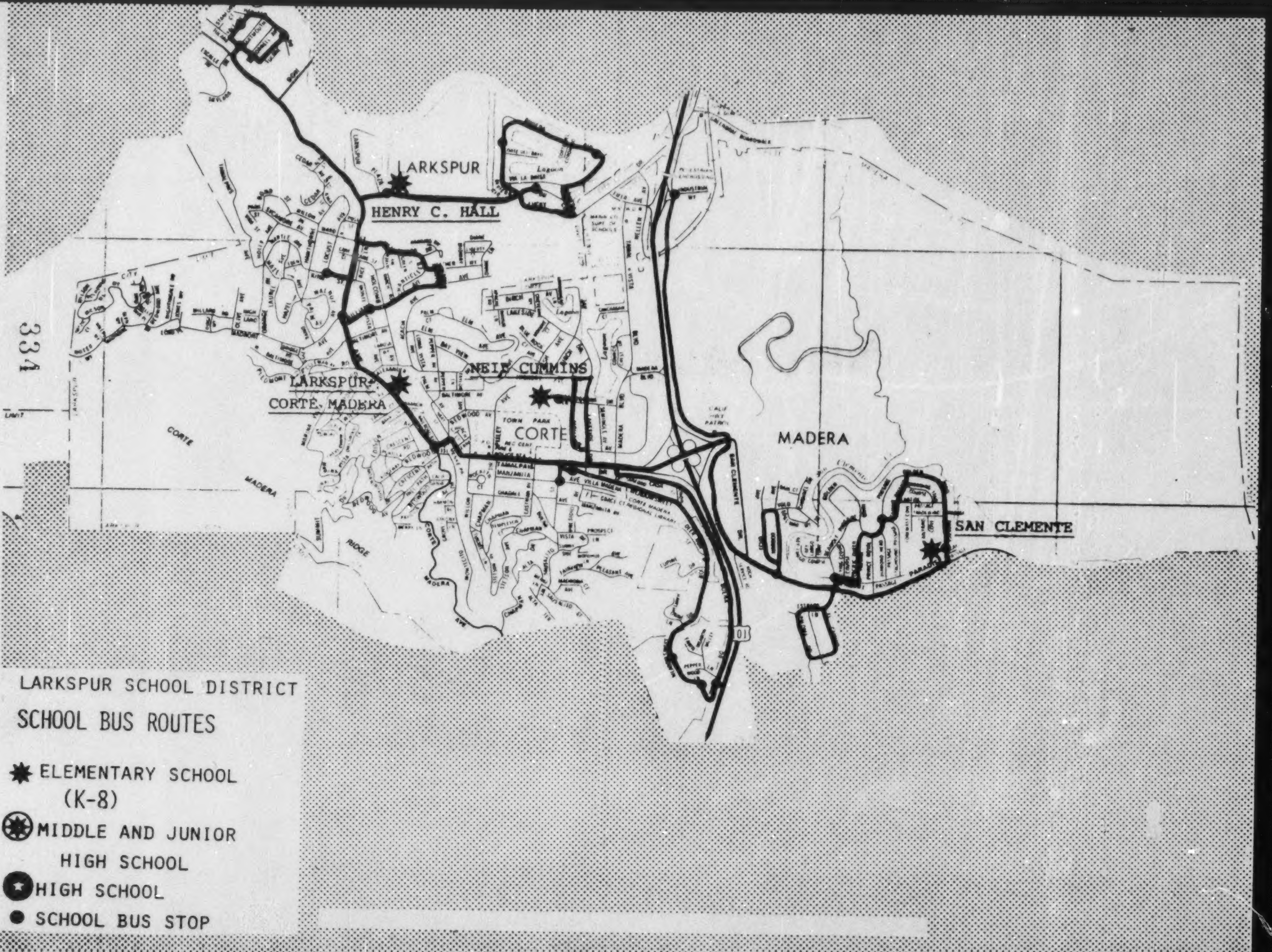
SCHOOL BUS ROUTES

✱ ELEMENTARY SCHOOL (K-8)
MIDDLE AND JUNIOR HIGH SCHOOL
HIGH SCHOOL
● SCHOOL BUS STOP
ADELINE E. KENT
ANTHONY G. BACICH
GREENBRAE
KENTFIELD
COLLEGE OF MARIN
Phoenix Lake
KNOB HILL
101



LAGUNITAS SCHOOL DISTRICT
SCHOOL BUS ROUTES

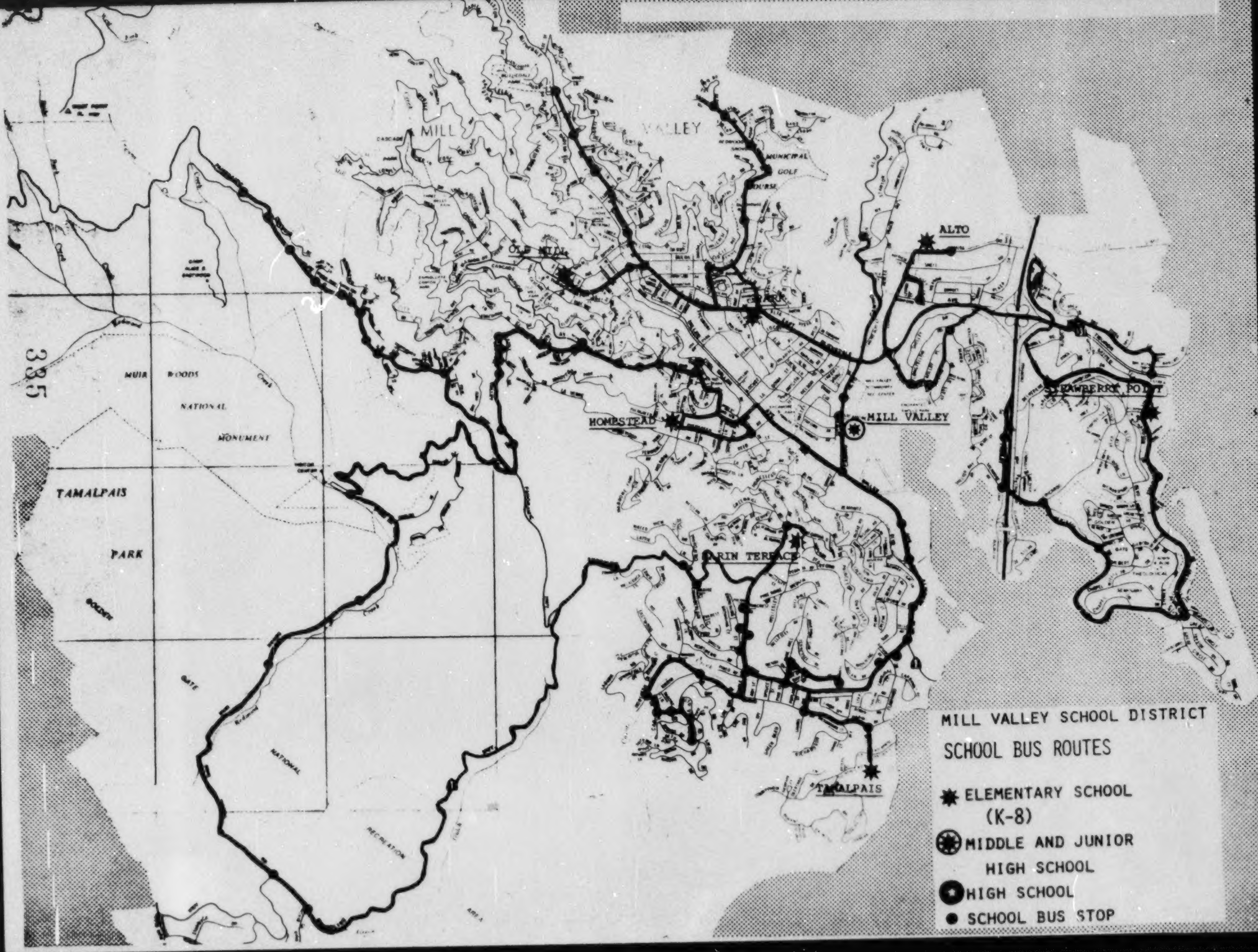
✱ ELEMENTARY SCHOOL (K-8)
MIDDLE AND JUNIOR HIGH SCHOOL
HIGH SCHOOL
● SCHOOL BUS STOP
Nicasio
Y LAS GALLINAS
Gulch
GRANT BOUNDARY
Y L O R
BM 265
BM 549
NICASIO HILL
LAGUNITAS
SAN GERONIMO VALLEY
Forest Knolls
BM 256
San Geronimo
San Geronimo Creek
BM 299
Woodacre
BM 351
BM 441
DRAKE
FRANCIS
Lagunitas
Water Tanks
S A N G E R O N I M O
GRANT BOUNDARY
BM Shafter
Creek
MOUNTAIN
ROAD

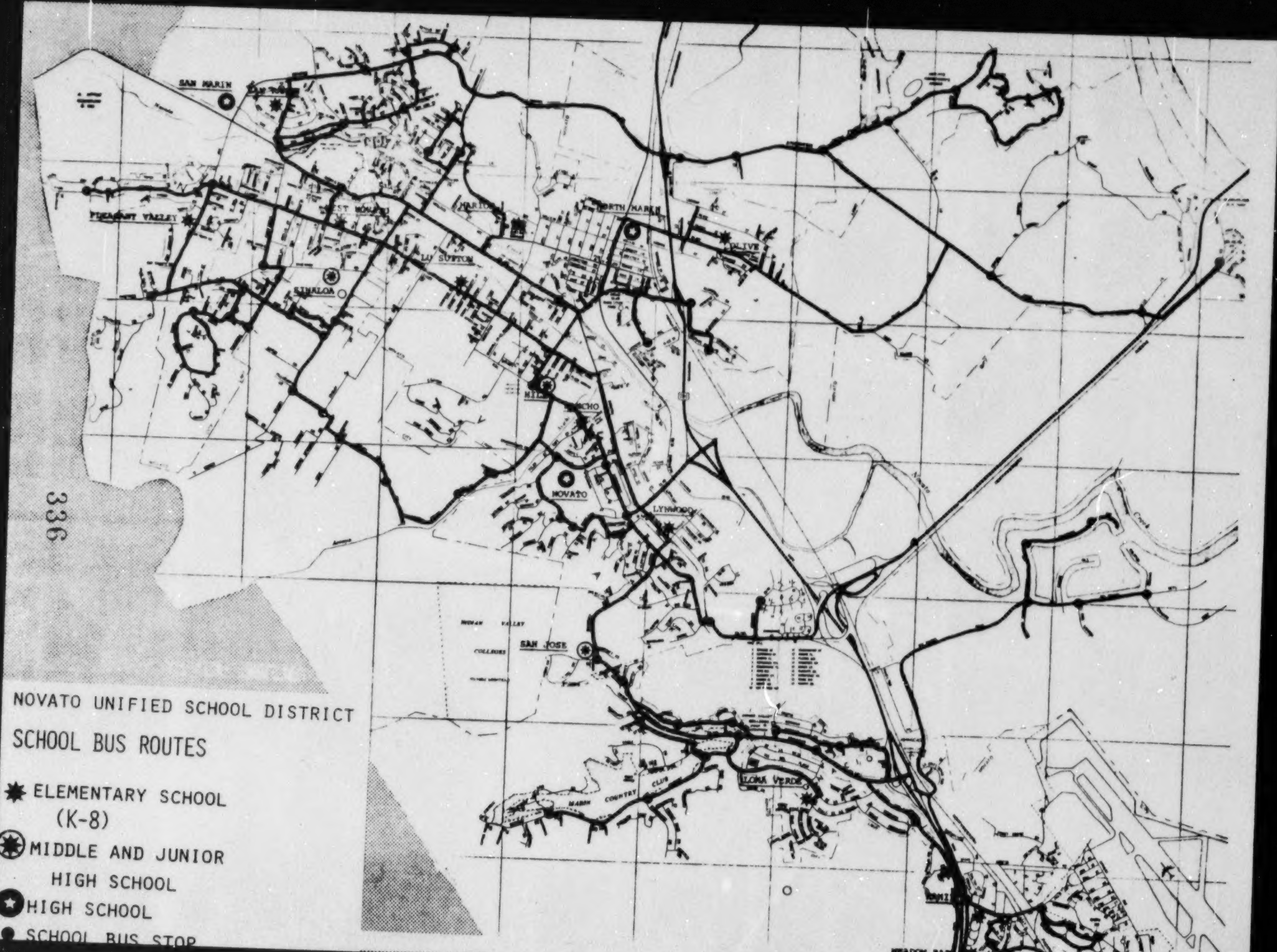

LARKSPUR
HENRY C. HALL
NEIL CUMMINS
LARKSPUR-CORTE MADERA
CORTE
MADERA
SAN CLEMENTE
CORTE MADERA
RIDGE
101

LARKSPUR SCHOOL DISTRICT

SCHOOL BUS ROUTES

- ✱ ELEMENTARY SCHOOL (K-8)
- ⊛ MIDDLE AND JUNIOR HIGH SCHOOL
- ✪ HIGH SCHOOL
- ● SCHOOL BUS STOP


MILL VALLEY SCHOOL DISTRICT
SCHOOL BUS ROUTES
ELEMENTARY SCHOOL (K-8)
MIDDLE AND JUNIOR HIGH SCHOOL
HIGH SCHOOL
SCHOOL BUS STOP
MILL VALLEY
MUNICIPAL GOLF COURSE
OLD MILL
PARK
ALTO
STRAWBERRY POINT
MILL VALLEY
HOMESTEAD
MARIN TERRACE
TAMALPAIS
MUIR WOODS NATIONAL MONUMENT
TAMALPAIS PARK
GOLDEN GATE NATIONAL RECREATION AREA

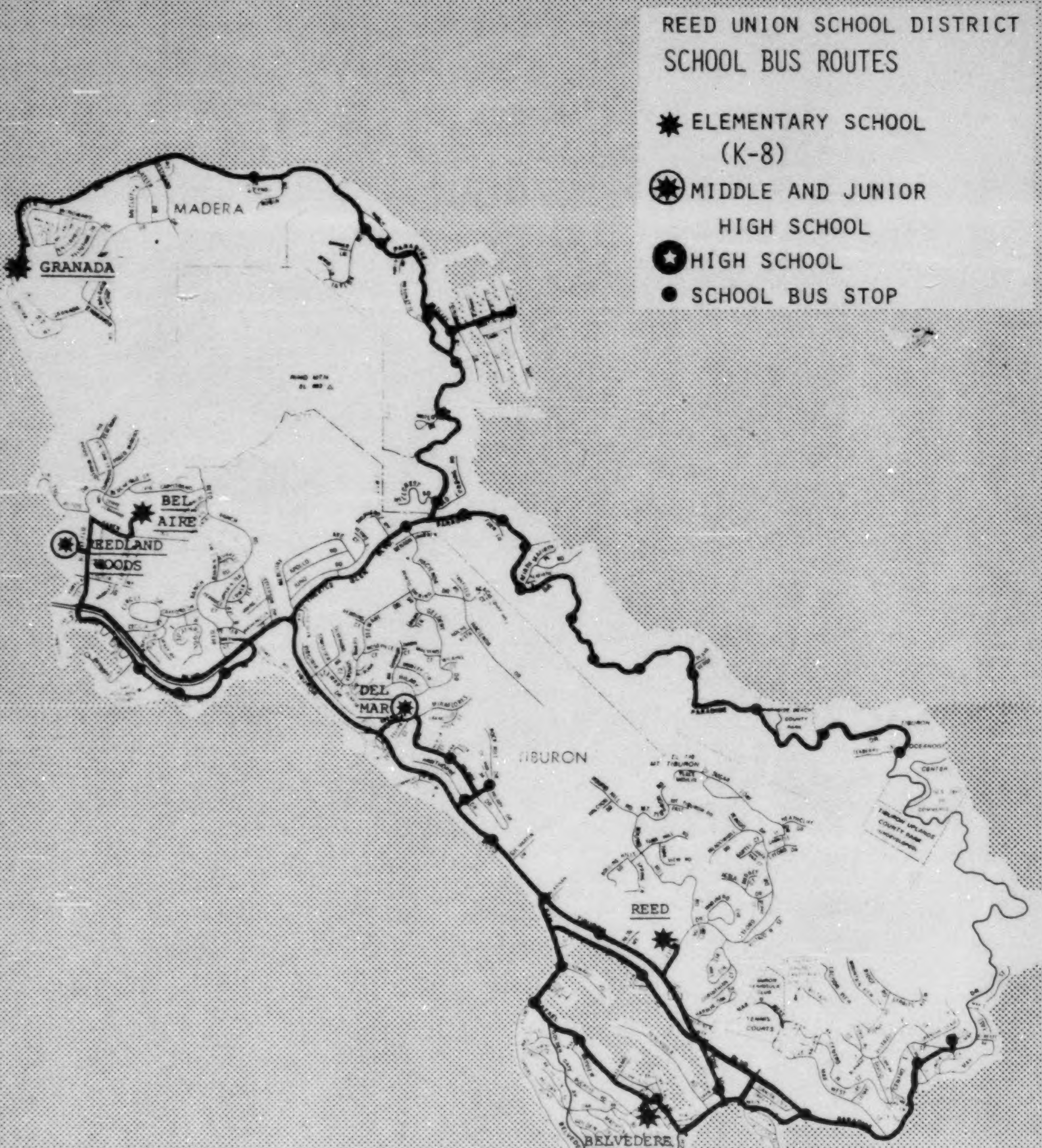

SAN MARIN
PLEASANT VALLEY
WEST NOVATO
SINALOA
LU SUTTON
NORTH MARIN
OLIVE
HILL
RANCHO
NOVATO
LYNWOOD
SAN JOSE
INDIAN VALLEY COLLEGES
LOMA VERDE
MARIN COUNTRY CLUB
MEADOW PARK

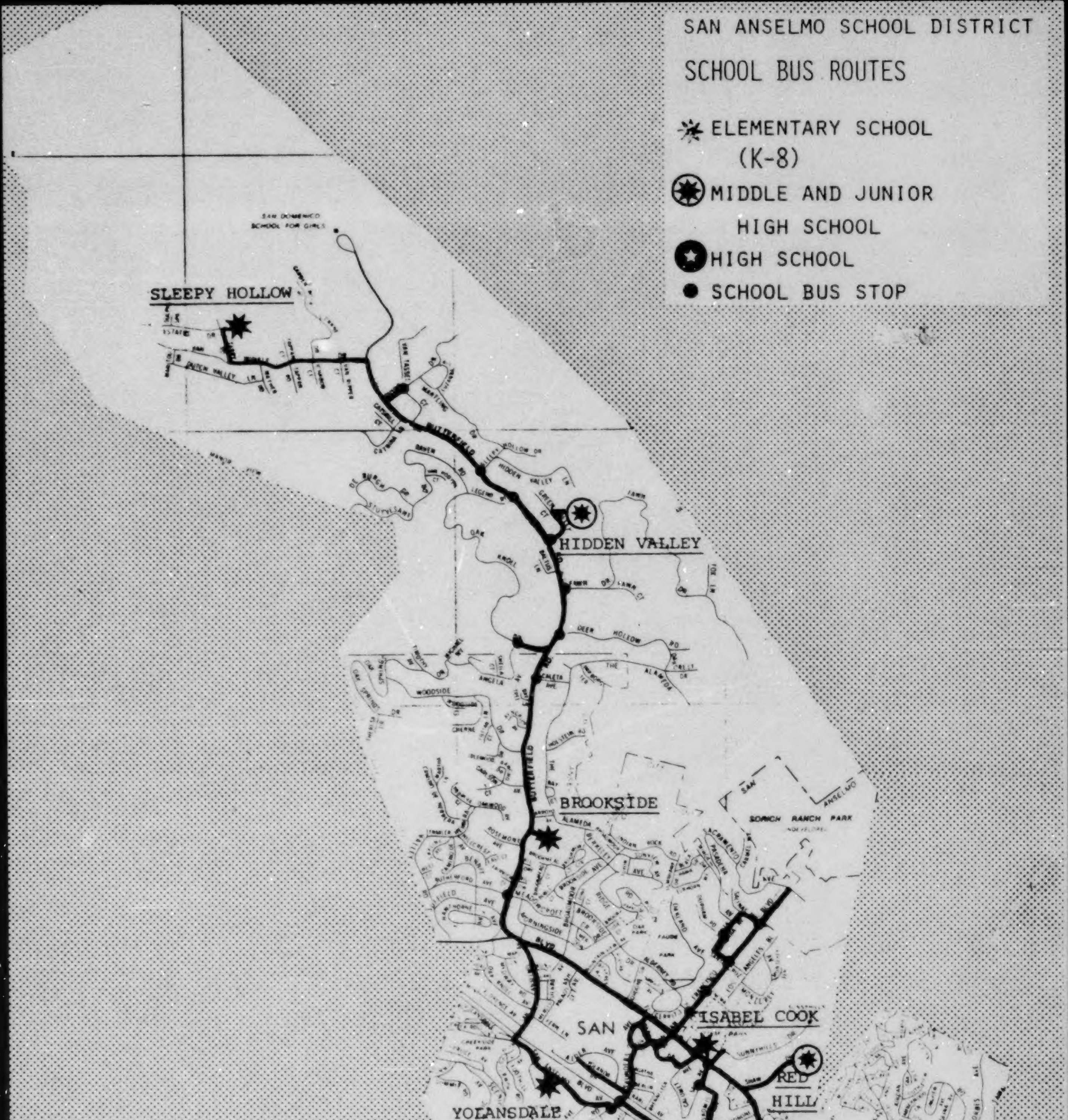
NOVATO UNIFIED SCHOOL DISTRICT

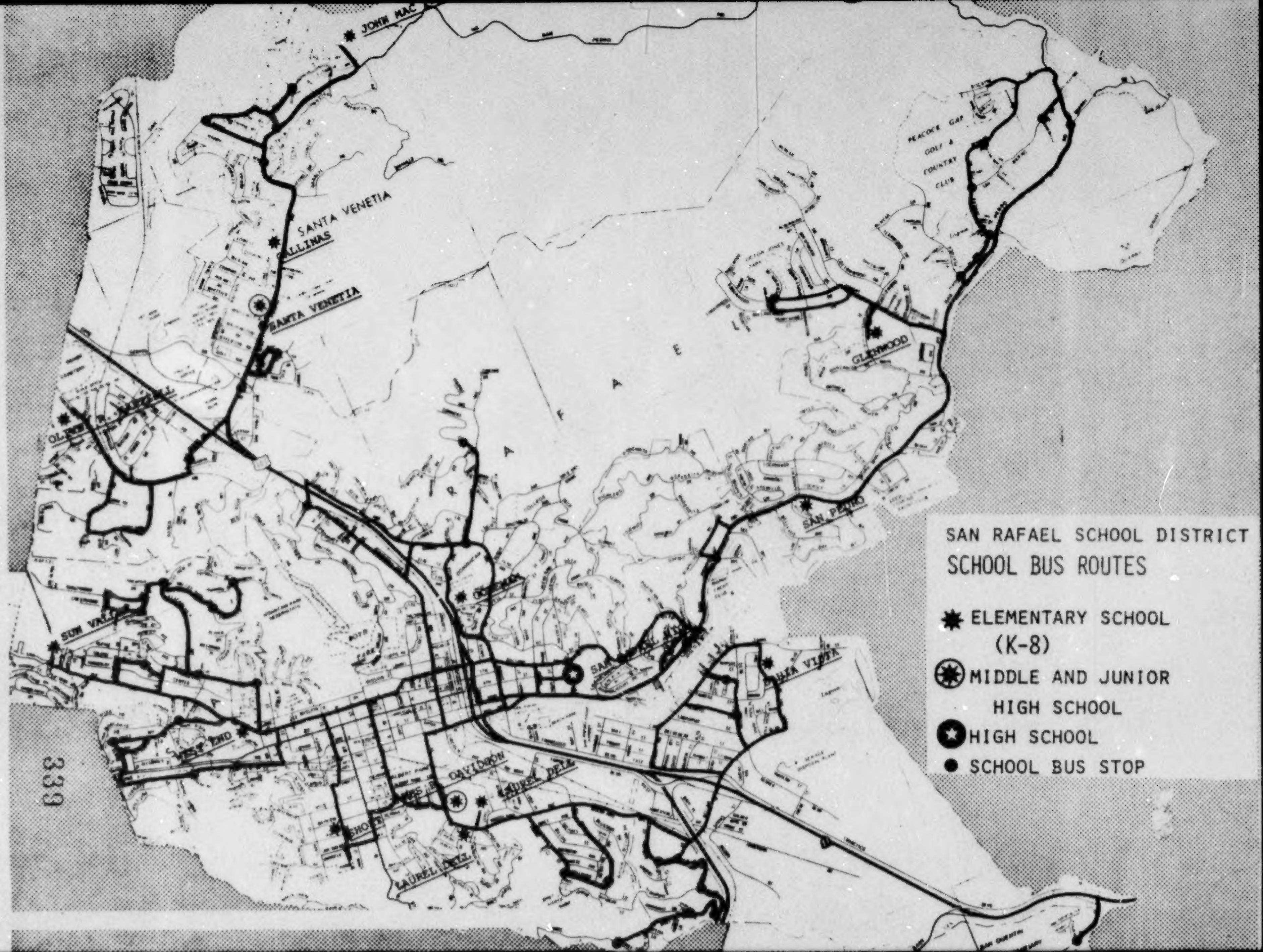
SCHOOL BUS ROUTES

✱ ELEMENTARY SCHOOL (K-8)
MIDDLE AND JUNIOR HIGH SCHOOL
HIGH SCHOOL
● SCHOOL BUS STOP

REED UNION SCHOOL DISTRICT
SCHOOL BUS ROUTES


✸ ELEMENTARY SCHOOL (K-8)
MIDDLE AND JUNIOR HIGH SCHOOL
HIGH SCHOOL
● SCHOOL BUS STOP
GRANADA
MADERA
BEL AIRE
REEDLAND WOODS
DEL MAR
TIBURON
REED
BELVEDERE


SAN ANSELMO SCHOOL DISTRICT
SCHOOL BUS ROUTES
ELEMENTARY SCHOOL (K-8)
MIDDLE AND JUNIOR HIGH SCHOOL
HIGH SCHOOL
● SCHOOL BUS STOP
SAN DOMENICO SCHOOL FOR GIRLS
SLEEPY HOLLOW
BUTTERFIELD
HIDDEN VALLEY
DEER HOLLOW
THE ALAMEDA
BROOKSIDE
SORICH RANCH PARK
SAN
ISABEL COOK
RED HILL
YOLANSDALE
ANSELMO
WADE THOMAS

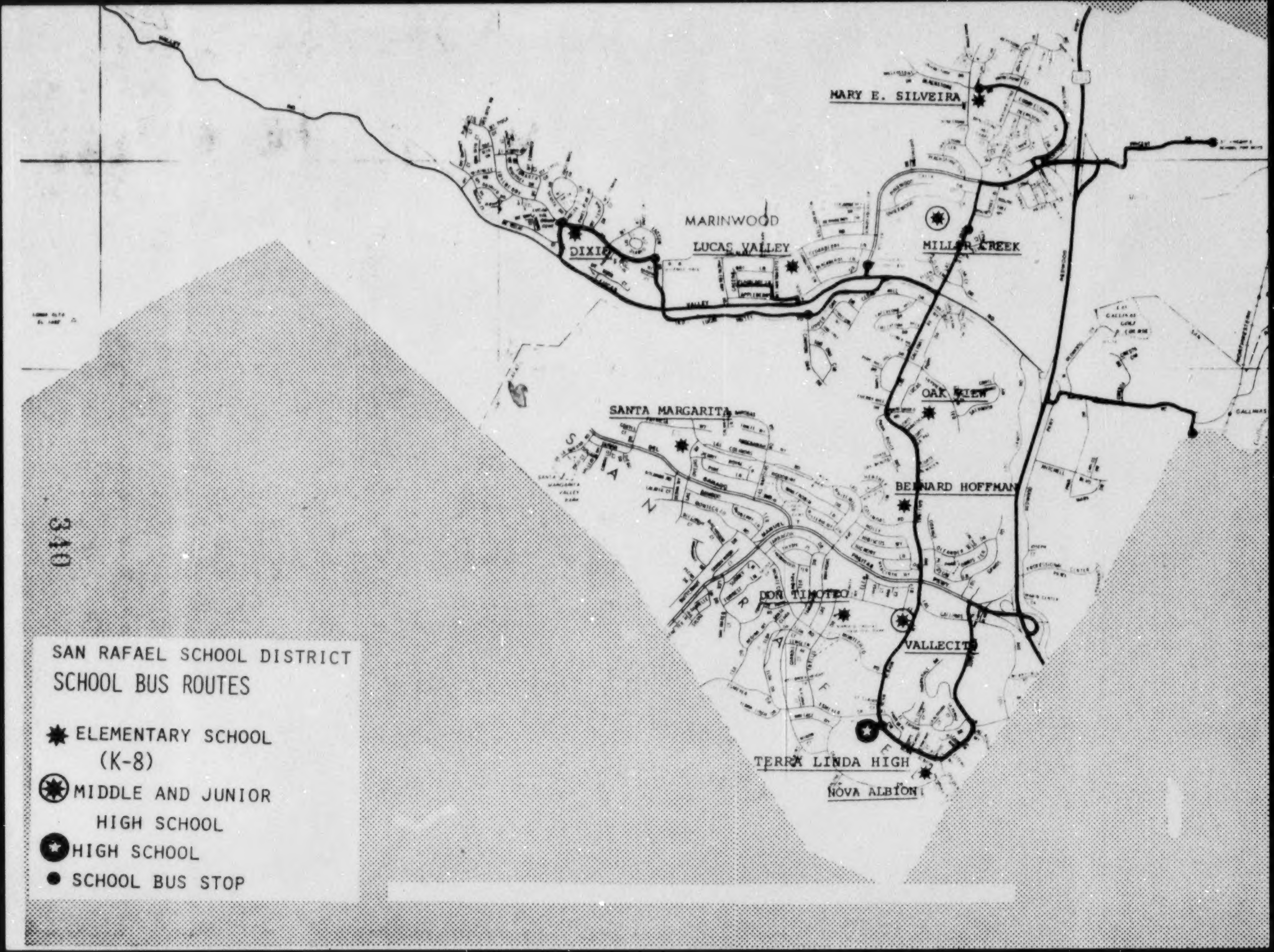


SAN RAFAEL SCHOOL DISTRICT

SCHOOL BUS ROUTES

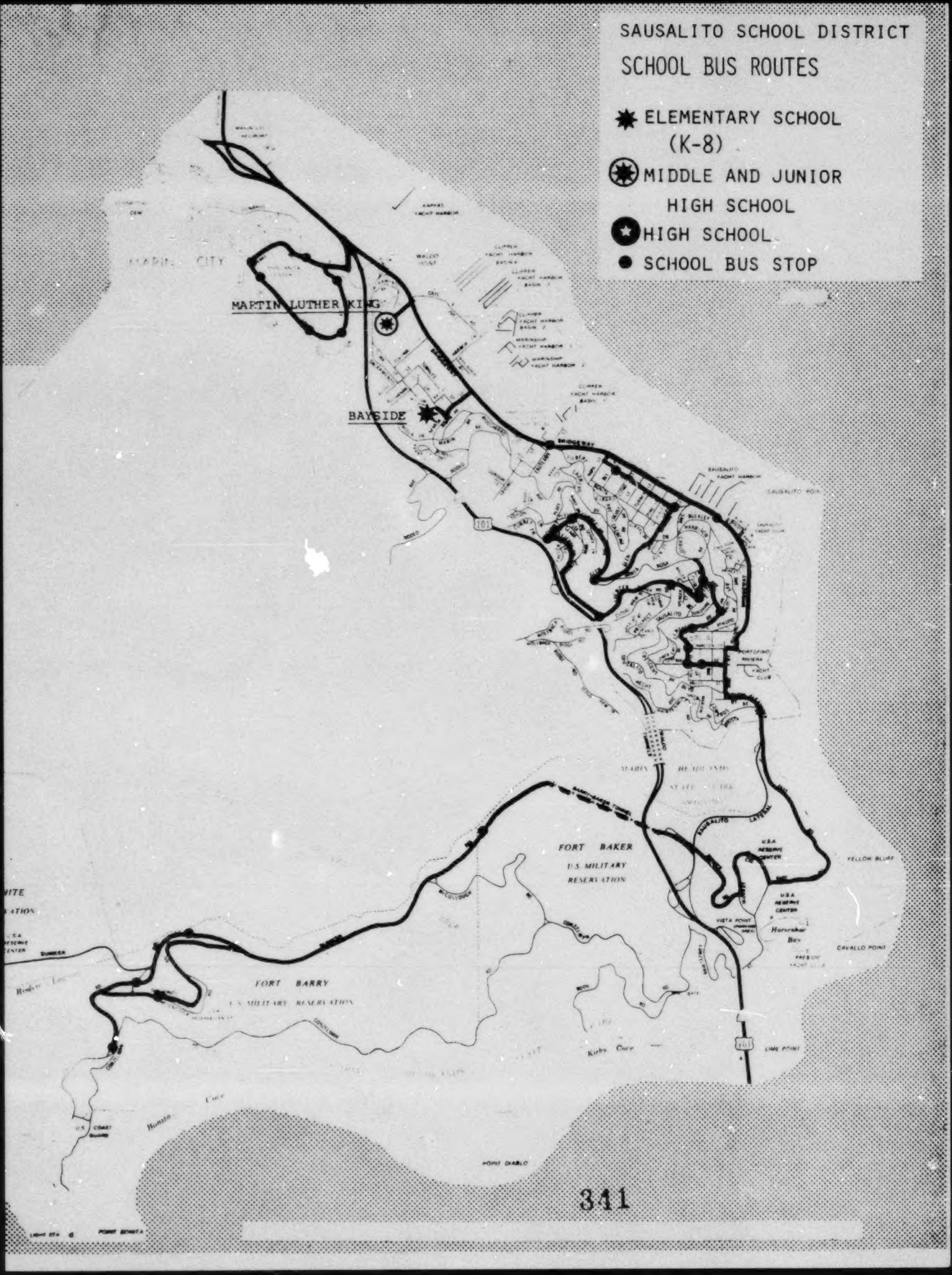
- ✱ ELEMENTARY SCHOOL (K-8)
- ⊛ MIDDLE AND JUNIOR HIGH SCHOOL
- ✪ HIGH SCHOOL
- ● SCHOOL BUS STOP

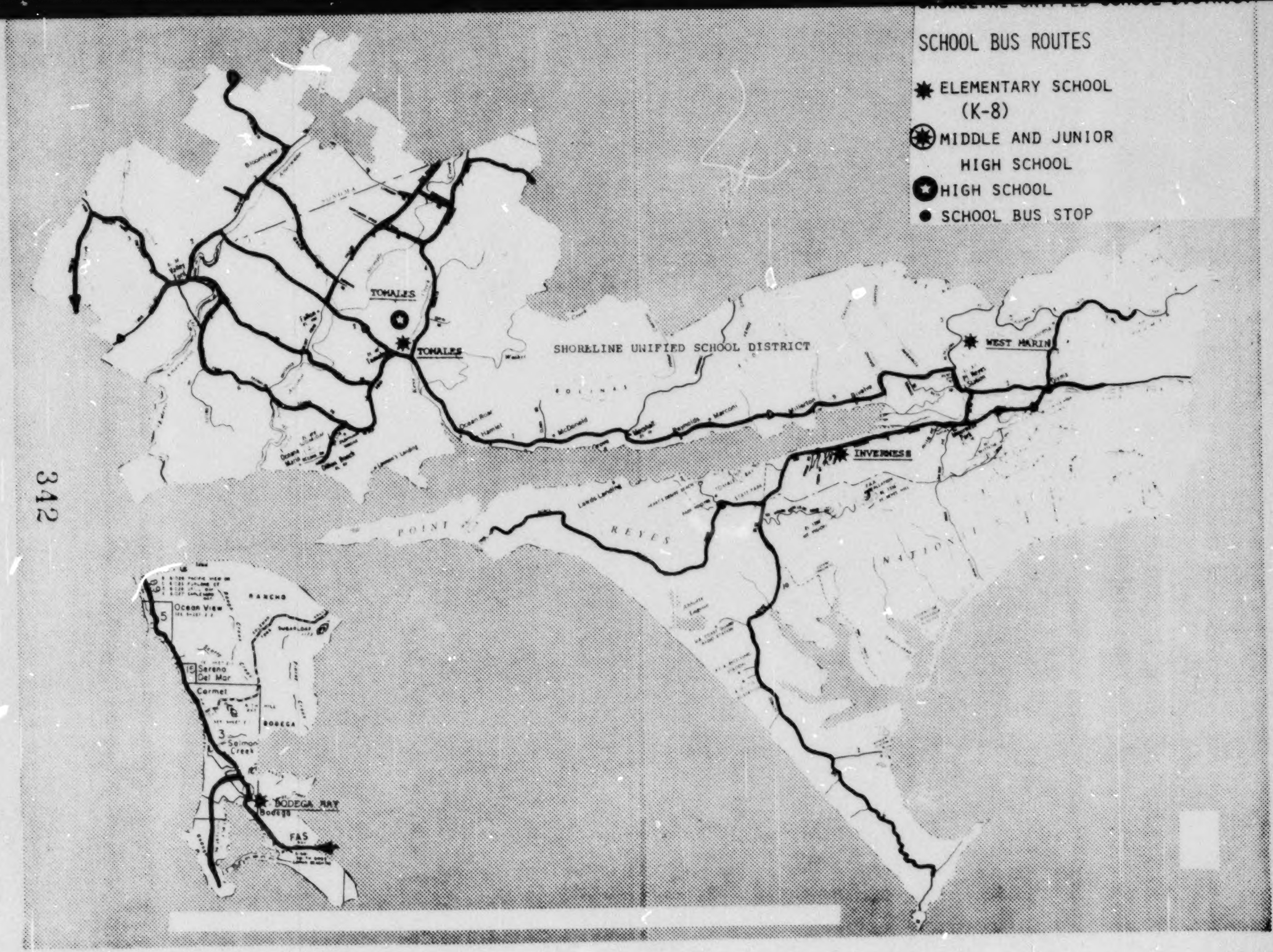
JOHN MAC
SANTA VENETIA
GALLINAS
SANTA VENETIA
PEACOCK GAP GOLF & COUNTRY CLUB
GLENWOOD
SAN PEDRO
SUN VALLEY
WEST END
SHORT
DAVIDSON
LAUREL DELL
LAUREL DELL
BAHIA VISTA
SAN PEDRO
R A F A E L

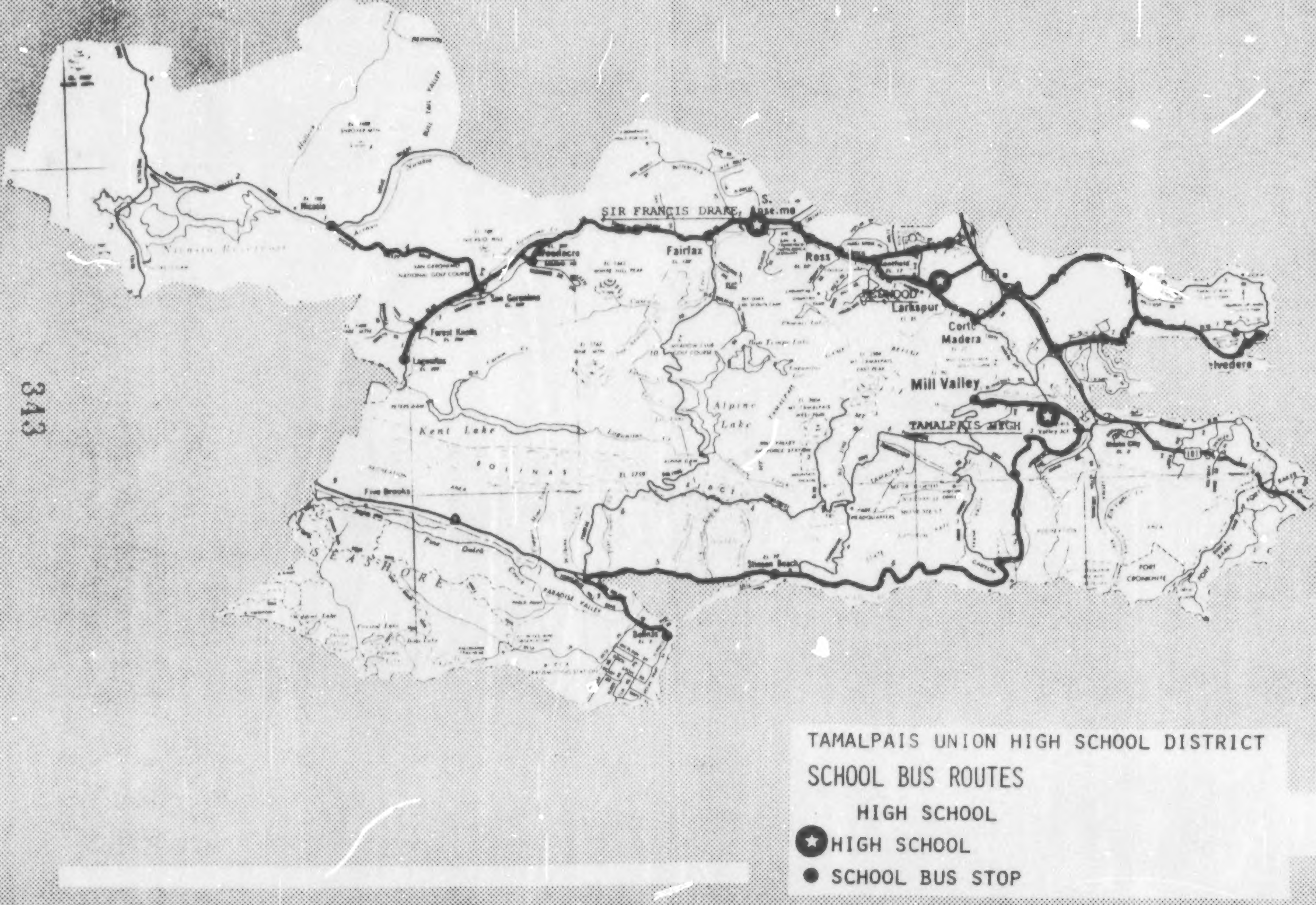

MARY E. SILVEIRA
MARINWOOD
LUCAS VALLEY
MILLER CREEK
DIXIE
OAK VIEW
SANTA MARGARITA
BERNARD HOFFMAN
DON TIMOTEO
VALLECITO
TERRA LINDA HIGH
NOVA ALBION
S A N R A F
E

SAN RAFAEL SCHOOL DISTRICT
SCHOOL BUS ROUTES

- ✱ ELEMENTARY SCHOOL (K-8)
- ⊛ MIDDLE AND JUNIOR HIGH SCHOOL
- ✪ HIGH SCHOOL
- ● SCHOOL BUS STOP




SCHOOL BUS ROUTES
ELEMENTARY SCHOOL (K-8)
MIDDLE AND JUNIOR HIGH SCHOOL
HIGH SCHOOL
SCHOOL BUS STOP
SHORELINE UNIFIED SCHOOL DISTRICT
TOMALES
TOMALES
Bloomfield
WEST MARIN
INVERNESS
Ocean Roar
Hamlet
McDonald
Marshall
Reynolds
Marconi
Millerton
POINT REYES
NATION
RANCHO
Ocean View
Sereno Del Mar
Carmet
BODEGA
Salmon Creek
BODEGA BAY
Bodega
FAS
5
3



TAMALPAIS UNION HIGH SCHOOL DISTRICT

SCHOOL BUS ROUTES

HIGH SCHOOL
HIGH SCHOOL
● SCHOOL BUS STOP
SIR FRANCIS DRAKE
Fairfax
Ross
Larkspur
Corte Madera
Mill Valley
TAMALPAIS HIGH
Belvedere
Alpine Lake
Kent Lake
Forest Knolls
Lagunitas
San Geronimo
Woodacre
Nicasio
Nicasio Reservoir
Five Brooks
Stinson Beach
Bolinas
BOLINAS
SEASHORE
PARADISE VALLEY
FORT CRONKHITE
101

MARIN SCHOOL TRANSPORTATION STUDY

SCHOOL BUS FLEET INVENTORY
(District Owned Buses)

SCHOOL DISTRICT	UNIT NO.	PASSENGER CAPACITY	GAS OR DIESEL	MODEL YEAR	ORIGINAL COST	ANNUAL LEASE
Bolinas-Stinson	1	66	G	1971	10,700	
	2	66	G	1971	10,700	
Dixie	1	66	G	1963	7,196	
	2	60	G	1959	6,990	
	3	66	G	1962	7,472	
	4	66	G	1968	8,896	
Lagunitas	1	66	G	1963		
	2	66	G	1961		
	3	67	G	1972	10,500	1,800.00
Marin County	1	37	G	1961		
	2	9	G	1969		1,550.52
	3	4-5 WC	G	1974		1,879.60
	4	37	G	1961		
	5	4-5 WC	G	1971		1,526.40
	6	4-5 WC	G	1971		1,526.40
	7	9	G	1970		1,540.52
	8	37	G	1964		
	9	16	G	1971		
	10	9	G	1971		1,590.00
	11	4-5	G	1970		1,526.40
	14	16	G	1971		1,780.80
	15	16	G	1971		
	16	16	G	1971		
	17	16	G	1971		
	18	16	G	1971		
	19	16	G	1971		
	20	16	G	1974		1,757.40
	21	16	G	1971		
	22	11	G	1968		
	23	11	G	1968		
	24	11	G	1968		
	25	11	G	1967		
	26	9	G	1967		
	27	4-5 WC	G	1968		
	28	4-5 WC	G	1974		1,757.40
	30	11	G	1968		
	31	6	G	1968		1,176.60
	32	4-5 WC	G	1968		
	33	4-5 WC	G	1969		
	34	9	G			1,550.52
	35	9	G	1970		1,550.52
	36	9	G	1970		1,550.52
	38	16	G	1974		1,757.40
	42	4-5 WC	G	1972		1,590.00
	49	16	G	1972		1,740.00
	50	16	G	1972		1,740.00

School Bus Fleet Inventory (continued)

SCHOOL DISTRICT	UNIT NO.	PASSENGER CAPACITY	GAS OR DIESEL	MODEL YEAR	ORIGINAL COST	ANNUAL LEASE
Mill Valley	1	62	G	1953	14,080.10	
	2	51	G	1953	12,509.75	
	3	79	D	1966	12,773.00	
	4	79	G	1957	16,417.76	
	5	79	D	1973	33,610.00	
	6	79	G	1965	6,000.00	
	7	66	G	1968	8,076.60	
	8	79	D	1973	34,335.00	
Novato	1	79	D	1964	22,646.32	
	2	79	D	1964	22,654.32	
	3	73	G	1956	14,185.08	
	6	79	G	1962	19,043.93	
	7	79	D	1962	19,043.93	
	8	79	D	1965	23,040.16	
	9	79	D	1966	22,354.80	
	10	79	D	1966	22,354.80	
	11	79	D	1967	24,707.80	
	13	79	G	1962	19,043.93	
	14	79	G	1963	18,408.00	
	15	79	D	1967	24,707.80	
	16	79	D	1967	24,495.00	
	17	79	D	1968	26,004.30	
	24	16	G	1971	4,882.50	
	25	10	G	1969	3,631.52	
	26	5	G	1970	4,918.29	
San Anselmo	2	54	G	1967	7,545.00	
San Rafael	5	66	G	1974	14,245.00	
	9	79	G	1960	15,954.00	
	10	66	G	1963	8,112.00	
	11	66	G	1963	8,112.00	
	12	66	G	1963	8,112.00	
	13	66	G	1964	7,113.00	
	14	66	G	1964	7,113.00	
	15	66	G	1964	7,113.00	
	28	16	G	1965	2,280.00	
	17	66	G	1965	6,971.00	
	18	66	G	1965	6,971.00	
	19	66	G	1965	6,971.00	
	20	66	G	1965	6,971.00	
	21	66	D	1968	9,251.58	
	22	69	G	1968	9,251.58	
	23	69	G	1968	9,251.58	
	24	69	D	1968	10,574.22	
	25	69	D	1968	10,574.22	
	26	69	D	1968	10,574.22	
	27	16	G	1969	---	

School Bus Fleet Inventory (continued)

SCHOOL DISTRICT	UNIT NO.	PASSENGER CAPACITY	GAS OR DIESEL	MODEL YEAR	ORIGINAL COST	ANNUAL LEASE
Sausalito	3	67	G	1968	20,635.00	4,333.35
	4	67	G	1969	22,200.00	4,662.00
	7	61	G	1965	18,430.00	4,306.00
	8	61	G	1965	18,430.00	4,306.00
Shoreline	1	61	G	1956	7,200.00	
	2	51	G	1949	10,000.00	
	3	61	G	1962	10,000.00	
	4	76	G	1965	17,500.00	
	5	55	G	1965	11,600.00	
	6	55	G	1967	11,900.00	
	7	12	G	1968	3,500.00	
	8	12	G	1965	3,200.00	
	9	79	D	1970	27,678.00	
	10	76	G	1968	16,000.00	
	11	79	D	1972	31,000.00	
	12	16	G	1972	4,950.00	
	13	79	D	1973	31,000.00	
	14	16	G	1974	5,500.00	
Tamalpais	2	51	G	1955	15,000.00	

ALTERNATIVE A - GOLDEN GATE TRANSIT ROUTE 23 EXTENSION

Description

Continuation of Route 23 from Olema Drive and Sir Francis Drake Blvd. in Fairfax to Lagunitas, via Woodacre and Lagunitas schools. Special AM eastbound run from Nicasio provided for high school students.

Operating Characteristics

Route

Olema Drive at Sir Francis Drake -- Woodacre Imp. Club -- Lagunitas/San Geronimo Valley School -- Forest Knolls -- Mt. View -- Lagunitas Store. (No service to Tamal Rd., Arroyo Rd., or Barranca Rd.)

Schedule

- 30 minute service between 7:00 AM and 10:00 PM.
- Buses arrive at Lagunitas schools at 7, 14, 37, and 44 minutes past the hour.
- One AM eastbound trip via Nicasio

Equipment

2 Golden Gate Transit 45-passenger coaches required in addition to existing equipment on Route 23.

Estimated Cost of Operation

- 15 hours x 2 trips per hour x 16 miles per round trip = 480 miles per day.
- 480 miles x peak/off-peak differential of 1 x $1.61 cost per mile = $773 per day.

Estimated Daily Patronage

Lagunitas School District

- 80% of 470 bused pupils (assuming no service to Tamal Rd. area) = 752 person trips.

Tamalpais High School Students

- 80 students one-way = 80 person trips

College of Marin Students

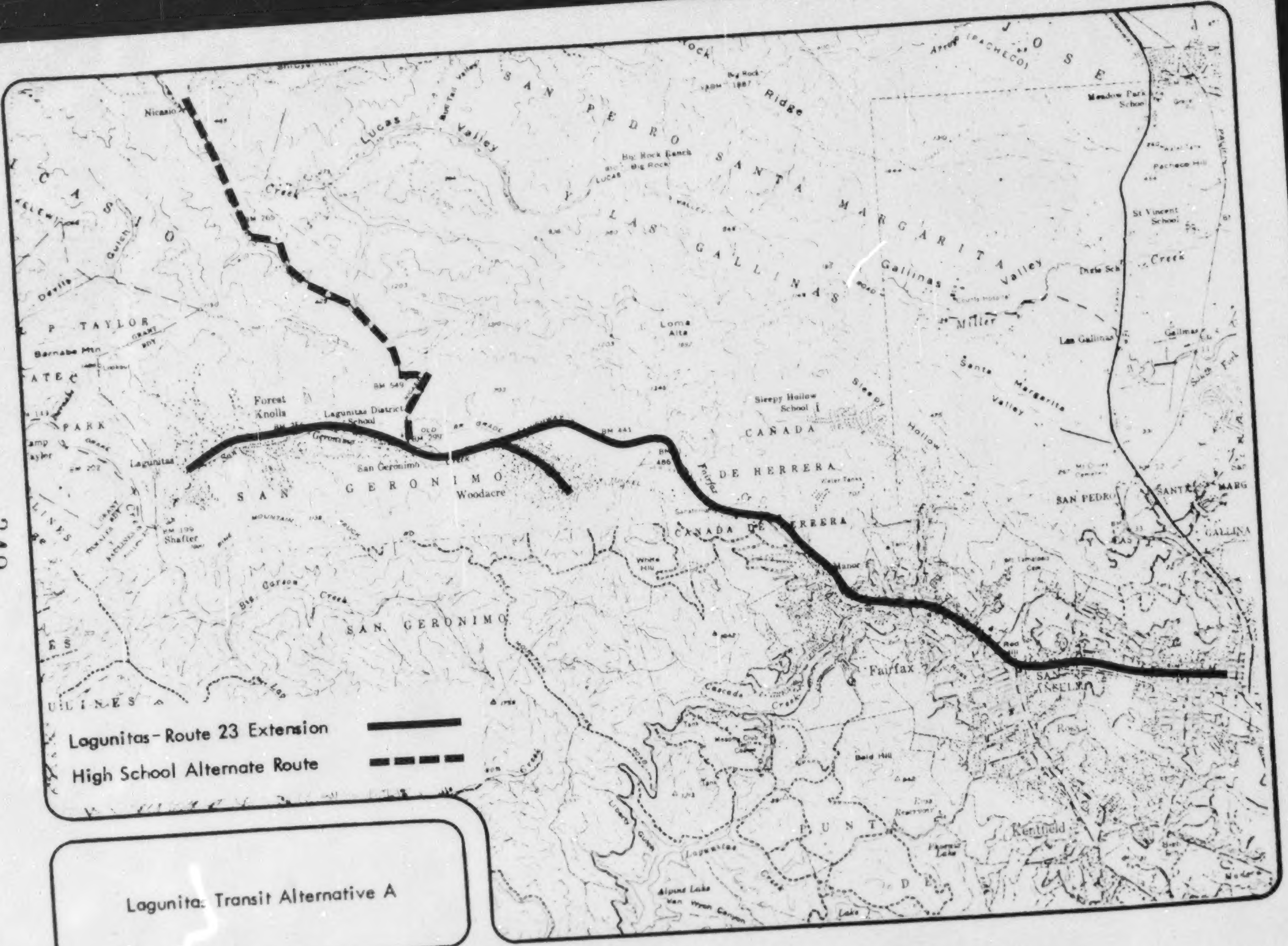
- 25% of 150 students living in San Geronimo Valley = 38 = 76 person trips.

General Public

- 5% of 3,100 residents = 155 = 310 person trips.

Total Person Trips

1,218


Lagunitas-Route 23 Extension
High School Alternate Route
Nicasio
Lucas Valley
SAN PEDRO SANTA MARGARITA Y LAS GALLINAS
Big Rock Ridge
Loma Alta
Sleepy Hollow School
Sleepy Hollow
CAÑADA DE HERRERA
Forest Knolls
Lagunitas District School
Lagunitas
San Geronimo
SAN GERONIMO
Woodacre
Shafter
White Hill
Fairfax
Manor
Cascade Creek
Bald Hill
Kentfield
Gallinas Valley
Santa Margarita Valley
Miller
Las Gallinas
St Vincent School
Pacheco Hill
Meadow Park School
SAN PEDRO
Alpine Lake
TAYLOR
Barnabe Mtn
CASIO
PUNTA DE
SAN JOSE

Lagunitas Transit Alternative A

TRANSIT SERVICE TO LAGUNITAS SCHOOLS

ALTERNATIVE A

EXTENSION OF GGT ROUTE 23 TO SAN GERONIMO VALLEY

AM ARRIVALS

Buses From Lagunitas, Forest Knolls	Stop at Tamal Rd.	School Starting Times	Buses From Woodacre, San Geronimo
8:07	No	8:25	8:14
		8:45	
8:37	"	8:50	8:44
		9:00	
9:07	"	9:25	9:14
		9:30	
9:37	"	9:45	9:44
		9:50	
12:07	"	12:25	12:14

PM DEPARTURES

Buses to Lagunitas Forest Knolls	Stop at Tamal Rd.	School Dismissal Times	Buses to Woodacre San Geronimo
12:14	No	11:50	12:07
12:44	"	12:25	12:37
1:44	"	1:30	1:37
2:14	"	1:45	2:07
		1:50	
2:44	"	2:30	2:37
3:14	"	2:45	3:07
		2:50	
3:44	"	3:25	3:37

ALTERNATIVE B - COLLEGE OF MARIN SHUTTLE

Description

Hourly transit service from San Geronimo Valley to College of Marin via Lagunitas, Tamal Rd., and Woodacre. Schedule for maximum coordination with College of Marin class schedule.

Operating Characteristics

Route

- College Ave. and Sir Francis Drake Blvd. -- San Anselmo -- Fairfax -- Woodacre (Imp. Club) -- Lagunitas/San Geronimo Valley Schools -- Forest Knolls -- Tamal Rd. -- Lagunitas
- Alternate AM run via Nicasio

Schedule

- Hourly service between 7:00 AM and 10:00 PM.
- Buses arrive Lagunitas schools at 25 and 45 min. past the hour.

Equipment

- 2 Golden Gate Transit 45-passenger coaches.

Estimated Cost of Operation

- 15 hours x 1 trip per hour x 27.4 miles per round trip = 822 miles per day.
- 822 miles x peak/off-peak differential of 1 x $1.61 cost per mile = $ 662 cost per day.

Estimated Daily Patronage

Lagunitas School District

- 50% of 470 bused pupils (assuming only hourly service to schools) = 470 person trips.

Tamalpais High School Students

- 80 students one way = 80 person trips.

College of Marin Students

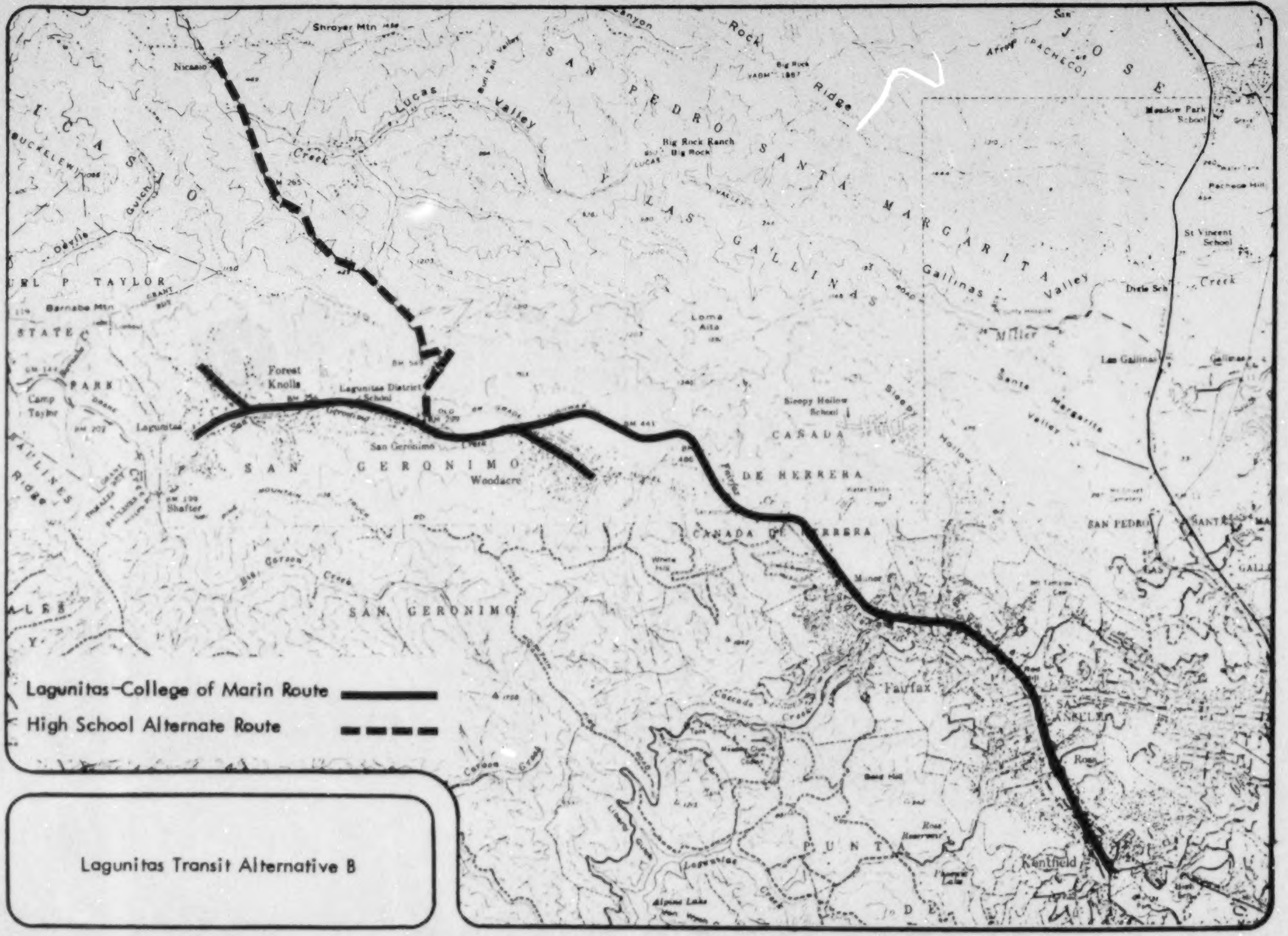
- 60% of 150 students living in San Geronimo Valley = 90 = 180 person trips.

General Public

- 5% of 3,100 Valley residents = 153 = 310 person trips.
- 400 patrons en route.

Total Person Trips

1,440


Lagunitas–College of Marin Route
High School Alternate Route
Nicasio
Shroyer Mtn
Lucas Valley
Creek
SAN PEDRO
Rock Ridge
Big Rock Ranch
Big Rock
SANTA MARGARITA
LAS GALLINAS
Gallinas Valley
Miller
Santa Margarita Valley
Las Gallinas
Loma Alta
Sleepy Hollow School
Sleepy Hollow
CAÑADA DE HERRERA
Meadow Park School
Pacheco Hill
St Vincent School
Dixie Sch
SAN JOSE
(PACHECO)
SAN PEDRO
Forest Knolls
Lagunitas District School
Lagunitas
Camp Taylor
Barnabe Mtn
SAMUEL P TAYLOR STATE PARK
Shafter
San Geronimo
SAN GERONIMO
Woodacre
Fairfax
Manor
SAN ANSELMO
Ross
Kentfield
Alpine Lake
Lagunitas Creek
Cascade Creek
PUNTA DE
BUCKELEW
LUCAS
Gulch
Big Carson Creek
Ridge

Lagunitas Transit Alternative B

TRANSIT SERVICE TO LAGUNITAS SCHOOLS

ALTERNATIVE B

SAN GERONIMO VALLEY TO COLLEGE OF MARIN

AM ARRIVALS

Buses From Lagunitas, Forest Knolls	Stop at Tamal Rd.	School Starting Times	Buses From Woodacre, San Geronimo
8:25	Yes	8:25	7:45
		8:45	
		8:50	
		9:00	8:45
9:25	"	9:25	
		9:30	
		9:45	9:45
		9:50	
12:25	"	12:25	11:45

PM DEPARTURES

Busos to Lagunitas Forest Knolls	Stop at Tamal Rd.	School Dismissal Times	Buses to Woodacre San Geronimo
12:45	Yes	11:50	12:25
		12:25	
1:45	"	1:30	
		1:45	2:25
		1:50	
2:45	"	2:30	
3:45	"	2:45	3:25
		2:50	
		3:25	

ALTERNATIVE C - SAN GERONIMO VALLEY SHUTTLE

Description

Valley transit service on 20-minute headways between Lagunitas and Fairfax (connecting with Golden Gate Transit Route 23 at Olema Drive and Sir Francis Drake Blvd.)

Operating Characteristics

Route

Olema Drive at Sir Francis Drake -- Woodacre Imp. Club -- Lagunitas/San Geronimo Valley Schools -- Forest Knolls -- Tamal Rd. -- Lagunitas Store.

Schedule

- 20-minute service between 7:00 AM and 10:00 PM.
- Buses arrive at Lagunitas Schools at 4, 5, 24, 25, 44, and 45 minutes past the hour.
- AM and PM trip via Nicasio for high school students.

Equipment

- 3 Golden Gate Transit 45-passenger Coaches

Estimated Cost of Operation

- 15 hours x .67 trips per hour x 17.4 miles per round trip x 3 buses = 525 miles per day.
- 525 miles x peak/off-peak differential of 1 x $1.61 = $845 per day.

Estimated Daily Patronage

Lagunitas School District

- 100% of 470 bused pupils = 940 person trips.

Tamalpais High School Students

- 80 students round trip = 160 person trips

College of Marin Students

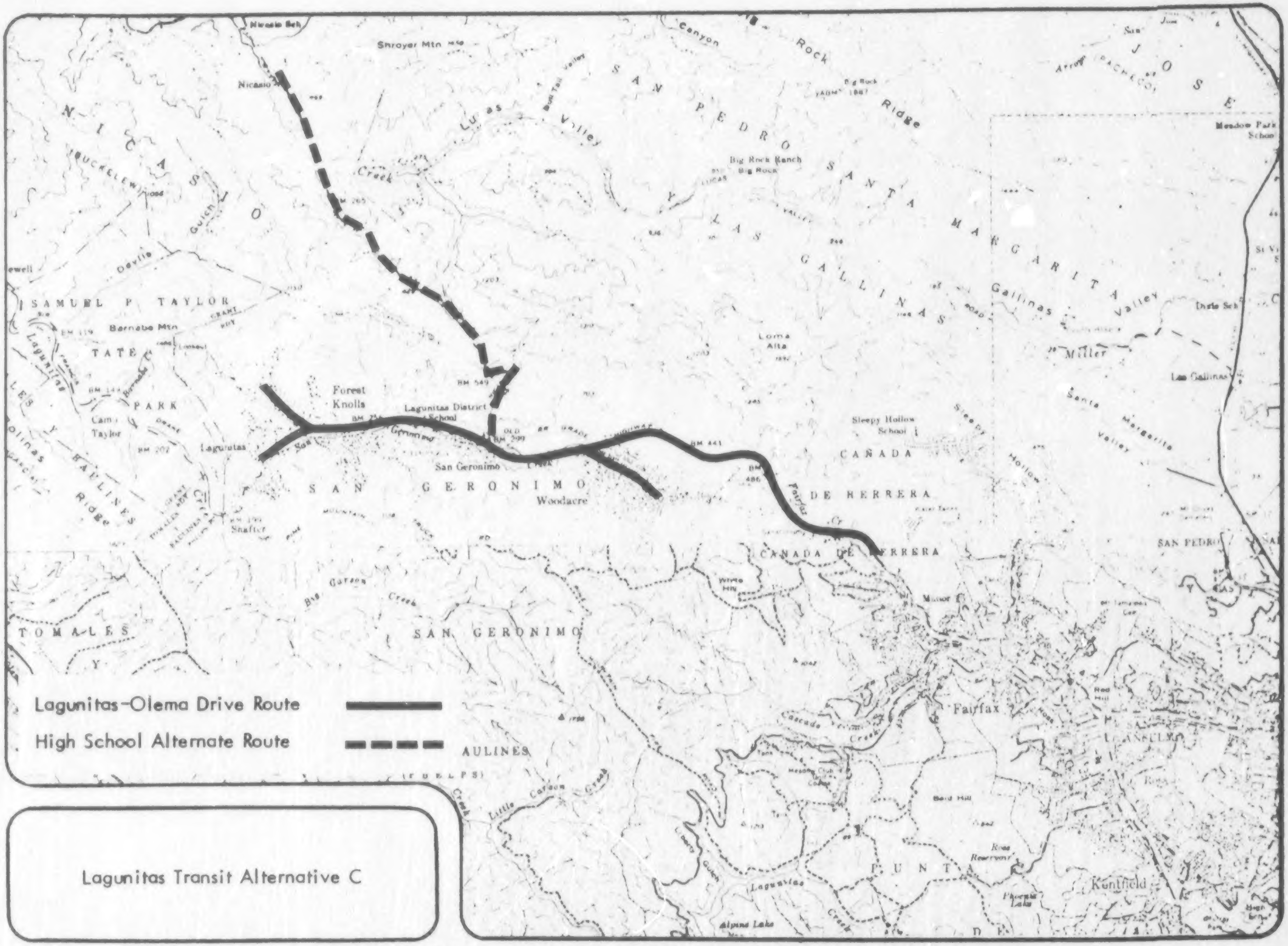
- 20% of 150 students living in San Geronimo Valley = 30 = 60 person trips.

General Public

. 4% of 3,100 residents = 124 = 248 person trips.

Total Person Trips

1,408


Lagunitas-Olema Drive Route
High School Alternate Route
Nicasio
Shroyer Mtn
Lucas Valley
SAN PEDRO SANTA MARGARITA Y LAS GALLINAS
Big Rock Ranch
Rock Ridge
Gallinas Valley
Miller
Las Gallinas
Santa Margarita Valley
Loma Alta
Sleepy Hollow School
CAÑADA DE HERRERA
Forest Knolls
Lagunitas District School
San Geronimo
SAN GERONIMO
Woodacre
Lagunitas
SAMUEL P. TAYLOR
Barnabe Mtn
TATE PARK
Camp Taylor
Shafter
NICASIO
TOMALES Y BAULINES
Fairfax
SAN ANSELMO
Kentfield
Cascade Creek
Lagunitas Creek
Alpine Lake
Phoenix Lake
Ross Reservoir
SAN PEDRO
JOSE
Meadow Park School
Canyon

Lagunitas Transit Alternative C

TRANSIT SERVICE TO LAGUNITAS SCHOOLS

ALTERNATIVE C

SAN GERONIMO VALLEY SHUTTLE TO ROUTE 23

AM ARRIVALS

Buses From Lagunitas, Forest Knolls	Stop at Tamal Rd.	School Starting Times	Buses From Woodacre, San Geronimo
8:24	Yes	8:25	8:25
		8:45	
8:44	"	8:50	8:45
		9:00	
9:24	"	9:25	9:25
		9:30	
9:44	"	9:45	9:45
10:44	"	9:50	
12:24	"	12:25	12:25

PM DEPARTURES

Buses to Lagunitas Forest Knolls	Stop at Tamal Rd.	School Dismissal Times	Buses to Woodacre San Geronimo
12:05	Yes	11:50	12:04
12:25	"	12:25	12:44
1:45	"	1:30	
		1:45	2:04
2:05	"	1:50	
2:45	"	2:30	2:44
		2:45	3:04
3:05	"	2:50	
3:25	"	3:25	3:44

ALTERNATIVE D - VALLEY SHUTTLE/COLLEGE OF MARIN SHUTTLE

Description

30 minute service between Lagunitas and Woodacre connecting with 60 minute service between Woodacre, Fairfax, San Anselmo, and College of Marin. Emphasis on Lagunitas school transportation, College of Marin transportation, and special services transportation, and special services transportation for Valley residents.

Operating Characteristics

Route

(A) Woodacre Imp. Club -- Lagunitas/San Geronimo Valley Schools -- Forest Knolls -- Tamal Rd. -- Lagunitas Store.

(B) Woodacre Imp. Club -- Fairfax -- San Anselmo -- College of Marin.

Schedule

(A) 30 minute service between 6:00 AM and 10:00 PM.

(B) 60 minute service between 7:00 AM and 10:00 PM.

- Buses arrive at Lagunitas Schools at 16, 24, 46, 54 minutes past the hour

Equipment

- 3 Golden Gate Transit 45-passenger Coaches or combination of full size bus and specially equipped midi-bus for Valley Shuttle

Estimated Cost of Operation

- 626 miles per day including deadheading.
- 626 miles x peak/off-peak differential of .98 x $1.61 per mile = $988 per day.

Estimated Patronage

Lagunitas School District

- 100% of 470 bused pupils = 940 person trips

Drake High School Students

- 80 students = 160 person trips

College of Marin Students

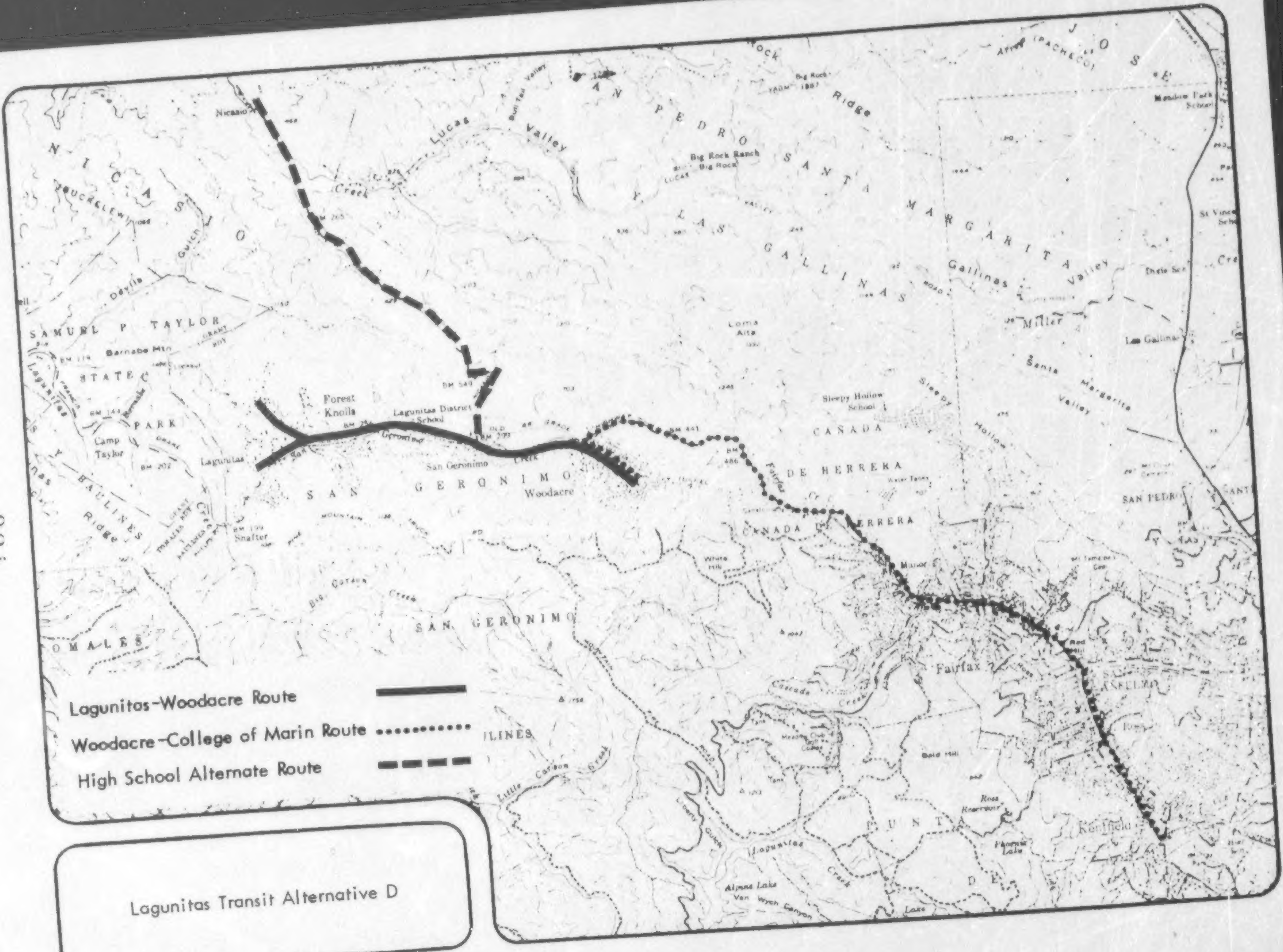
. 67% of 150 students living in San Geronimo Valley = 100
  = 200 person trips

General Public

. 5% of 3,100 residents = 155 = 310 person trips
. 400 patrons en route

Total Daily Patronage

2,010


Lagunitas-Woodacre Route
Woodacre-College of Marin Route
High School Alternate Route
Nicasio
NICASIO
Lucas Valley
Creek
SAN PEDRO SANTA MARGARITA
LAS GALLINAS
Big Rock Ridge
Big Rock Ranch
Gallinas Valley
Miller
Santa Margarita Valley
Sleepy Hollow
Sleepy Hollow School
Loma Alta
CANADA DE HERRERA
SAMUEL P. TAYLOR STATE PARK
Barnabe Mtn
Camp Taylor
Lagunitas
Forest Knolls
Lagunitas District School
San Geronimo
SAN GERONIMO
Woodacre
Shafter
BAULINES Ridge
White Hill
Manor
Fairfax
SAN ANSELMO
Kentfield
SAN PEDRO
Cascade Creek
Bald Hill
Ross Reservoir
Phoenix Lake
Lagunitas Creek
Alpine Lake
Van Wyck Canyon
Little Carson Creek
OMALES

Lagunitas Transit Alternative D

TRANSIT SERVICE TO LAGUNITAS SCHOOLS

ALTERNATIVE D

AM ARRIVALS

Buses From Lagunitas, Forest Knolls	Stop at Tamal Rd.	School Starting Times	Buses From Woodacre, San Geronimo
		8:25	8:16
8:24	Yes	8:45	
		8:50	8:46
8:54	"	9:00	
		9:25	
9:24	"	9:30	9:16
		9:45	
		9:50	9:46
12:24	"	12:25	12:16

PM DEPARTURES

Buses to Lagunitas Forest Knolls	Stop at Tamal Rd.	School Dismissal Times	Buses to Woodacre San Geronimo
12:16	Yes	11:50	11:54
12:46	"	12:25	12:54
1:46	"	1:30	
		1:45	1:54
2:16	"	1:50	
2:46	"	2:30	
		2:45	2:54
3:16	"	2:50	
3:46	"	3:25	3:54

MARIN SCHOOL TRANSPORTATION STUDY

San Geronimo Valley Transit--Lagunitas Demonstration Project

(Submitted to Urban Mass
Transportation Administration
for Assessment of Federal
Funding Potential).

October 2, 1975

SAN GERONIMO VALLEY
TRANSIT DEMONSTRATION PROJECT

EXISTING CONDITIONS

The San Geronimo Valley is located in "rural" Marin County approximately three miles west of Fairfax, the nearest activity center, and approximately eight miles west of San Rafael, the region's primary urban center. The valley population is about 3100 inhabitants and includes a higher than average proportion of high and low income residents. The Lagunitas School District which is nearly cotermious with the valley, has the second highest proportion of welfare recipients of any school district in the County.

Public transit is limited to a San Francisco commute run and two runs principally serving local high school students (Golden Gate Transit Route 49). A West Marin route serves the Valley on weekends, principally for recreational travel. No local transit is available on weekdays.

The Lagunitas School District buses approximately 470 of the 500 pupils enrolled in the school district. Two buses are used for this purpose with an annual budget of $29,000. Buses make ten full circuits of the Valley during the school day.

PROJECT TARGET GROUPS

Lagunitas School District Pupils

The 470 pupils currently bussed in the Valley are the largest potential transit dependent group and constitute the primary target of the demonstration project. The project will demonstrate that they can be transported safely and conveniently by local transit, with minimum changes in school schedules and maximum reduction in the school's transportation program.

High School Students

Approximately 40 high school students are now bussed out of the San Geronimo Valley and surrounding areas to a high school in San Anselmo (East Marin). A special Golden Gate Transit route has been established for this purpose, subsidized in part by the local high school district. The demonstration project would include these students and would enable funds supporting the existing route to be diverted to the demonstration project.

College of Marin Students

Approximately 150 junior college students live in the Valley and commute to the College of Marin in Kentfield. The demonstration project would give them convenient transit service. More than 40% of Marin local transit patronage consists of students, many of them College of Marin Students, and it is assumed that the same proportion of students in the Valley would become regular transit users.

The Elderly

The Whistle Stop Wheels Program funded by the Marin County Transit District, provides a Shoppers Shuttle twice monthly from the Valley to East Marin shopping centers. The demonstration project would incorporate this service and expand it to a daily, twice weekly run operating to shopping, medical and other services in East Marin.

Handicapped

Special training will be required of demonstration project driver's in the operation of school routes and the handling of children. The emphasis on human needs imparted in this training applies to handicapped passengers as well, and it is hoped that the project will demonstrate the value of increased sevitivity to human needs as an integral past of transit operation.

No provisions are currently made for the non-ambulatory handicapped in the San Geronimo Valley. The demonstration project may include a mid size vehicle for use in areas inaccessible to large vehicles, and this vehicle could be equipped with a wheelchair lift.

Low Income

As mentioned above, the San Geronimo Valley has a high concentration of welfare cases. In addition, unemployment is higher here than elsewhere in the County. Although some of these persons may not be able to afford transit, the demonstration project provides access to East Marin services and employment opportunities where none presently exists.

General Public

A San Geronimo Valley citizen's planning group has requested local transit service for some time reflecting local desire for access to East Marin. In addition, data from the Marin Balanced Transportation Study indicates that a considerable number of trips are made internal and external to the Valley that could be captured by transit.

OPERATION

Backbone of the operation is an extension of Golden Gate Transit Route 23 that now operates between San Rafael and Fairfax. Adding one bus to this route would allow direct service to be provided to the San Geronimo Valley at 60-minute intervals. This bus would serve home-to-school transportation needs in its circuit of the Valley.

A second bus would provide home-to-school transportation during school hours and provide specialized transportation during non-school hours. The specialized service could take a number of forms depending on the specific target group, equipment required, and time available. The following options are proposed:

A) Health Services Transportation. Express trips to clinics and hospitals in East Marin allowing direct access to these facilities for both valley residents and residents enroute.

B) Shoppers Shuttle. Express trips to shopping centers in San Rafael and vicinity, targeted specifically at Senior Citizens. Could be combined with (A) above.

C) Activity Centers Linkage. Trips beginning and ending in San Geronimo Valley and linking major activity centers in East Central Marin. This service has two objectives: to provide convenient access to these centers for Valley residents (incorporating (A) and (B) above); and to provide more direct service than offered by the existing system of routes. An important feature of the project will be to evaluate whether direct transit linkage to these services substantially increase use of the transit system by transit dependents.

D) Intra-Valley Shuttle. Demand responsive service using mid-size vehicles and providing access to hilly areas in the periphery of the San Geronimo Valley. Targeted at elderly, handicapped, and the general population in remote areas.

EQUIPMENT

Equipment would be 45 passenger transit coaches used by Golden Gate Transit with the exception that a mid-size coach may be required under specialized service concept (D) above.

PATRONAGE

Patronage would depend on the type of specialized service provided. However, several target groups can be identified at the outset: Lagunitas School District pupils, high school and college students attending schools in East Marin, and external trips made by the general public. Together these groups would account for 1200-1600 trips per day. By comparison, the average daily patronage for existing Marin transit routes is 1200 passengers.

PROJECT COST

The following costs are order-of-magnitude estimates: Operating cost was estimated assuming Golden Gate Transit as the operator at prevailing rates of $1.61 per mile. Daily mileage of 500 miles yields a basic daily cost of approximately $800.00. This cost could be defrayed by $100 assuming the home-to-school transportation budget of the Lagunitas School District could be reduced by this amount. Elimination of the special high school route operated by Golden Gate Transit would provide an additional $125. Fare box revenue would reduce expenditures by $100-200 assuming continuation of the existing 35¢ flat fare, Lagunitas pupils excepted. Net daily cost would then be $375-475, giving a total cost for a 176-day school year of $66,000-84,000. The addition of a special vehicle for intra-valley demand responsive service (mentioned under (D) above) would require a capital outlay of $20,000-30,000 and a dispatching budget of $10,000-12,000 per year. Marin County's Whistle Stop Wheels program would assist in operating this service.

San Geronimo Valley Transit--Lagunitas Demonstration Project

RESPONSIBILITIES OF PROJECT PARTICIPANTS

AREAS OF RESPONSIBILITY AGENCIES

Administration	LSD	GGT	MCTD	MCS	TUHSD	WSW	SGVPG
Responsible Agency			X				
Project Advisory Committee	X	X	X	X	X	(X)	X
Drivers	X	X				(X)	
Driver Training	X						
Policies & Procedures	X						
Community Information	X						
Passenger Information	X	X	X				
Student Passes	X	X					
Evaluation	X		X	X			
Passenger Counts	X	X					
Community Liaison	X						
Routes & Schedules	X	X					
Special Transportation Needs			X			X	X
Pupil Conduct	X						
Driver Conduct	X	X					
Passenger Surveys		X	X				
Fiscal							
Funding Contribution	X		X		X		
Operation							
Equipment		X				(X)	
Quality of Service		X					
Signing		X					
Route Mapping	X	X	X				
Operating Data							
Back-up Equipment		X					

LSD - Lagunitas School District
GGT - Golden Gate Transit
MCTD - Marin County Transit District
MCS - Marin County Schools Office
TUHSD - Tamalpais Union High School District
WSW - Whistle Stop Wheels Program
SGVPG - San Geronimo Valley Ad Hoc Planning Group